Oslo universitetssykehus

UiO : Institutt for klinisk medisin
Det medisinske fakultet

Foto: Øystein Horgmo, UiO

ÅRSRAPPORTER FRA FORSKNINGSGRUPPENE 2019

Klinikk for kirurgi, inflammasjonsmedisin og transplantasjon (KIT)

Innholdsfortegnelse

Forord

Det er et privilegium å være forskningsleder i KIT. Forskningsgruppestrukturen er moden og velfungerende, og forskningsgruppelederne våre erfarne og ambisiøse med stabilt høy forskningsproduksjon og stadig suksess med å tilegne seg konkurranseutsatte forskningsmidler. Rapporten fra forskningsgruppene er et vitnesbyrd om dette, og fornøyelig lesning. Forskning har også høy bevissthet i linjestrukturen, og forskere i KIT setter pris på den plass forskning har fått i klinikkleders stab gjennom ansettelse av en dedikert forskningsadministrativ leder for OUS linjen i form av Steinar Heldal. Også i universitetslinjen opplever klinikken god tilhørighet, og Kine Yttersian er nå godt integrert som koordinator for alle UiO aktiviteter – som fra 2019 ble overordnet overtatt av ny leder ved Institutt for Klinisk medisin, Dag Kvale.

Klinikken hadde gjennom 2019 flere aktiviteter som oppfølging av KITs forskningsutvalgs handlingsplan. Hovedsatsningen for 2019 var internasjonalisering, med en rekke tildelinger for kortvarige forskningsopphold i utlandet, eller for invitasjon av sentrale samarbeidspartnere og gjesteprofessorer til Oslo. I skrivende stund kan man si det var godt vi rakk å gjennomføre denne satsningen i 2019, siden reising og utveksling hadde møtt store utfordringer i vårt Covid-pregede 2020. Forskningen i KIT har en høy grad av internasjonalt samarbeid, og det er viktig for oss at vi sikrer en internasjonal standard som målestokk på hva vi skal prestere gjennom tett interaksjon med ledende aktører i relevante fagfelt.

Et annet hovedområde for 2020 var videreutvikling av systemer og plan for gjennomføring av kliniske studier – både forskerinitierte og industrifinansierte. KIT har en rekke fagområder med betydelig utviklingspotensiale her, kanskje særlig tilknyttet «I»'en i klinikknavnet (herunder immunosuppresjon innnen transplantasjonsfeltet), der det tradisjonelt har vært – og er – stor utprøvingsaktivitet. Aktiviteten har vært fragmentert, uten noen konsistent retning eller tilhørighet, og et sentralt utkomme har vært opprettelsen av en pilotordning med et stratetisk orientert protokollutvalg under ledelse av Michael Bretthauer. Utvalget leverer sin strategiske innstilling ila. 2020 som grunnlag for videre fasilitering av dette viktige feltet fremover.

Et hovedarbeid gjennom 2019 har også vært etableringen av gode systemer for karriereutvikling av yngre forskere. En første pilot med «seminar/samling» for yngre forskere i 2019 ble svært godt mottatt og innspill som innhentet i forbindelse med dette seminaret dannet grunnlaget for det videre arbeidet i regi av forskningsutvalget med å få på plass en god plan for det som var ment som hovedtiltak i 2020. Planene favner bredt, inkludert både nytt seminar, utvekslingsordninger internasjonalt for yngre forskere, skrivekurs og en mer sammensatt «KIT masterclass» inkludert mentorordning og flere samlinger.

Gjennom tiltakene håper vi å skape gode forhold for videreutvikling hos neste generasjon KIT forskere.

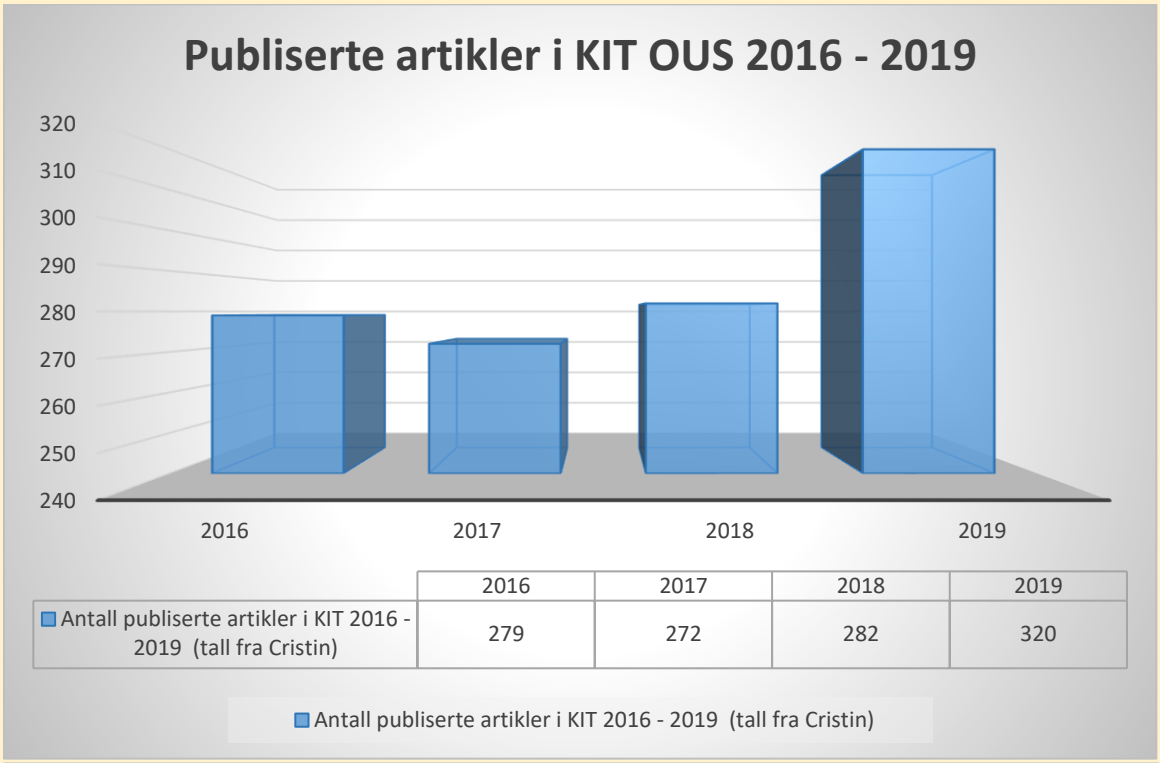
Sist har klinikken arbeidet systematisk med organisering av translasjonsforskningen som foregår i rammen av Institutt for Indremedisinsk forskning. Det finnes flere leire av translasjonsforskning i KIT, både ved lignende forskningsinstitutter (Institutt for Kirurgisk Forskning – der også KIT har aktivitet, Institutt for Eksperimentell forskning ved Ullevål, og Pediatrisk forskningsinstitutt), og i rammen av Klinikk for Laboratoriemedisin. Det er forventet viktige avgjørelser om organiseringen for translasjonsforskningen ved OUS i forbindelse med nye OUS og byggingen av nytt Livsvitenskapsbygg ved UiO, og arbeidet vårt gjennom 2019 har satt en retning for tilhørighet og premisser som er vktige å ivareta for vårt forskningsinstitutt inn mot nybygg.

Allerede når denne leder oppsummeres er det klart at 2020 ble annerledes enn vi tenkte oss på forhånd, men det får vi komme tilbake til i neste runde. Takk til alle for innsatsen i 2019.

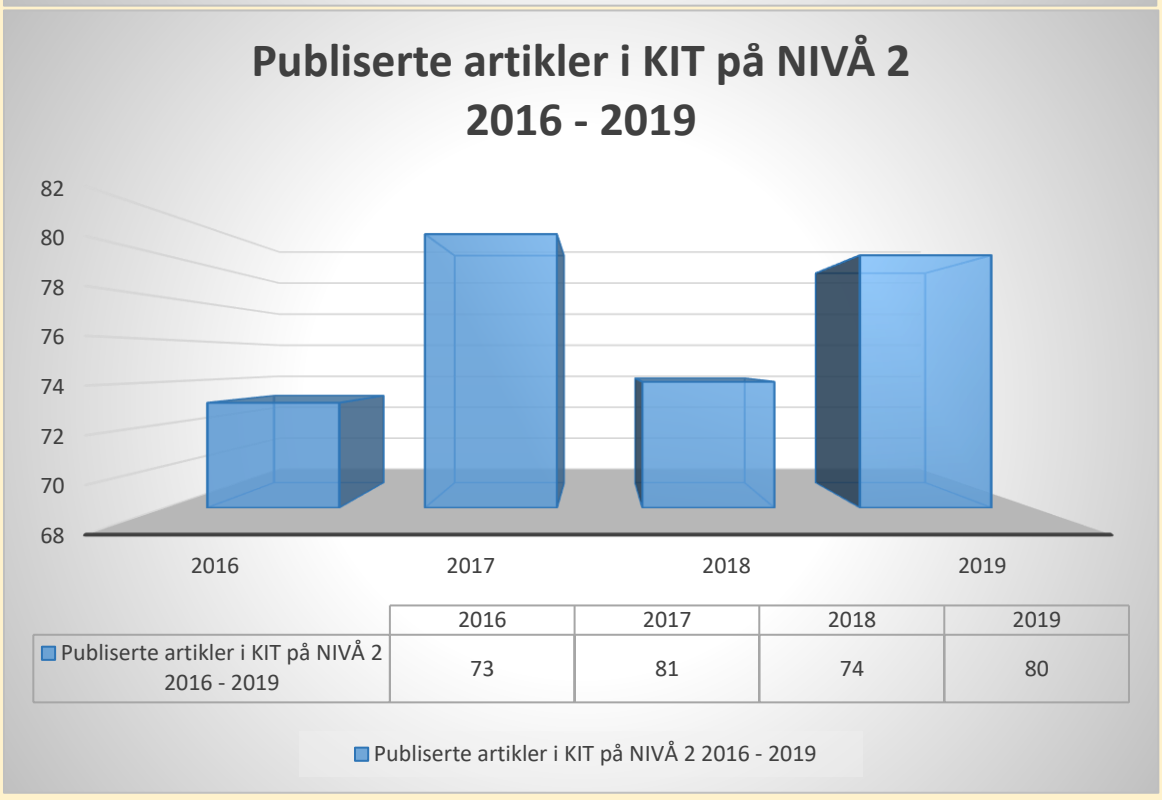
Tom Hemming Karlsen

Forskningsleder, KIT

Forskningsaktivitet i KIT – 2019

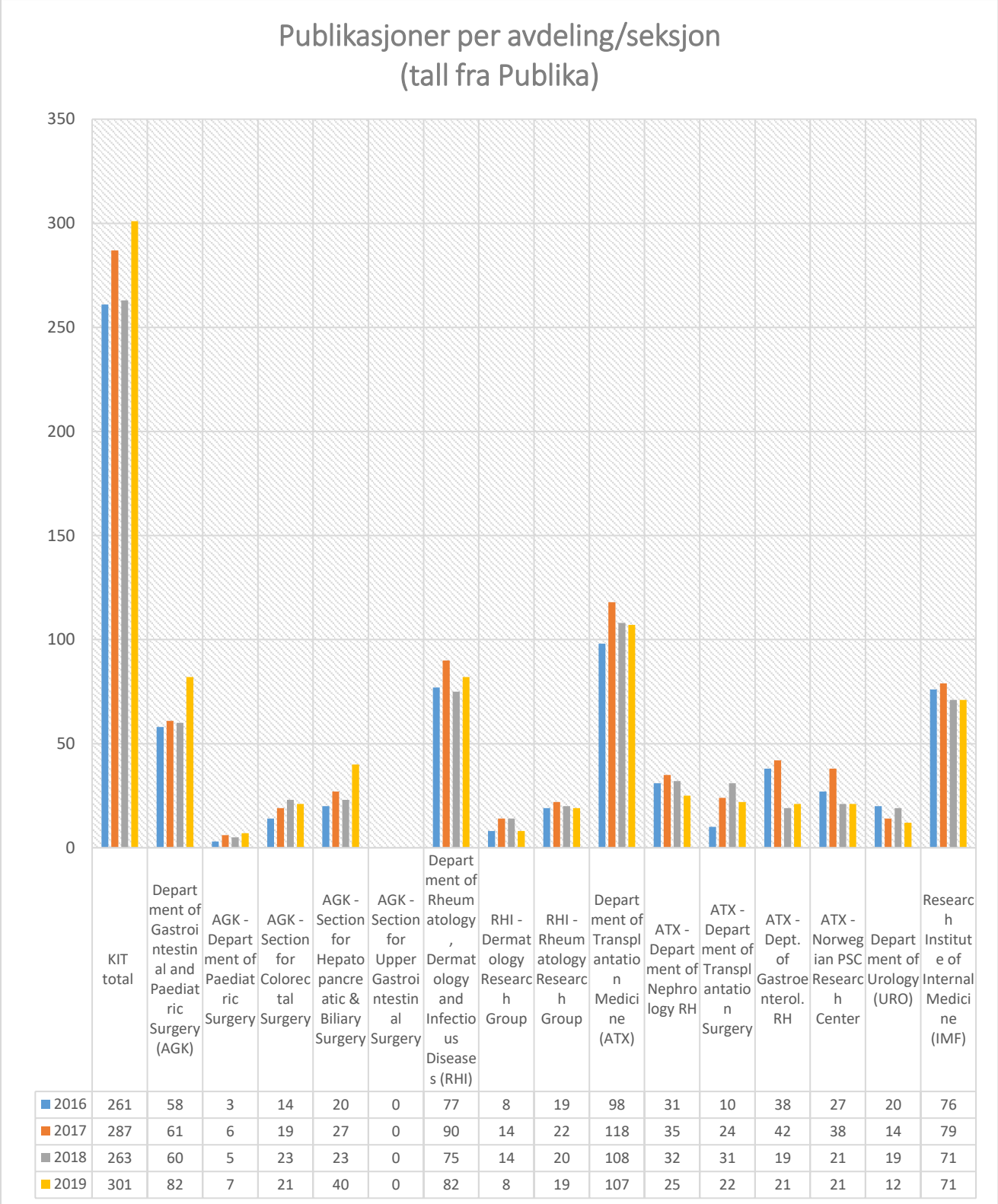


	2016	2017	2018	2019
Antall publiserte artikler i KIT 2016 - 2019 (tall fra Cristin)	279	272	282	320



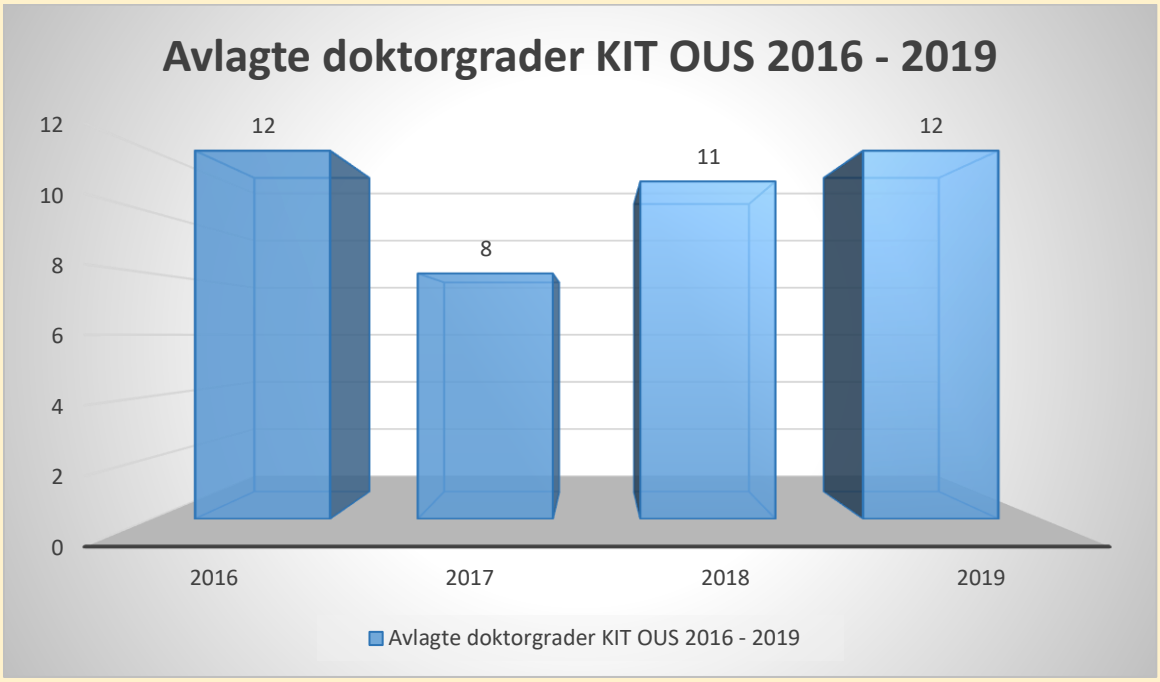
	2016	2017	2018	2019
Publiserte artikler i KIT på NIVÅ 2 2016 - 2019	73	81	74	80

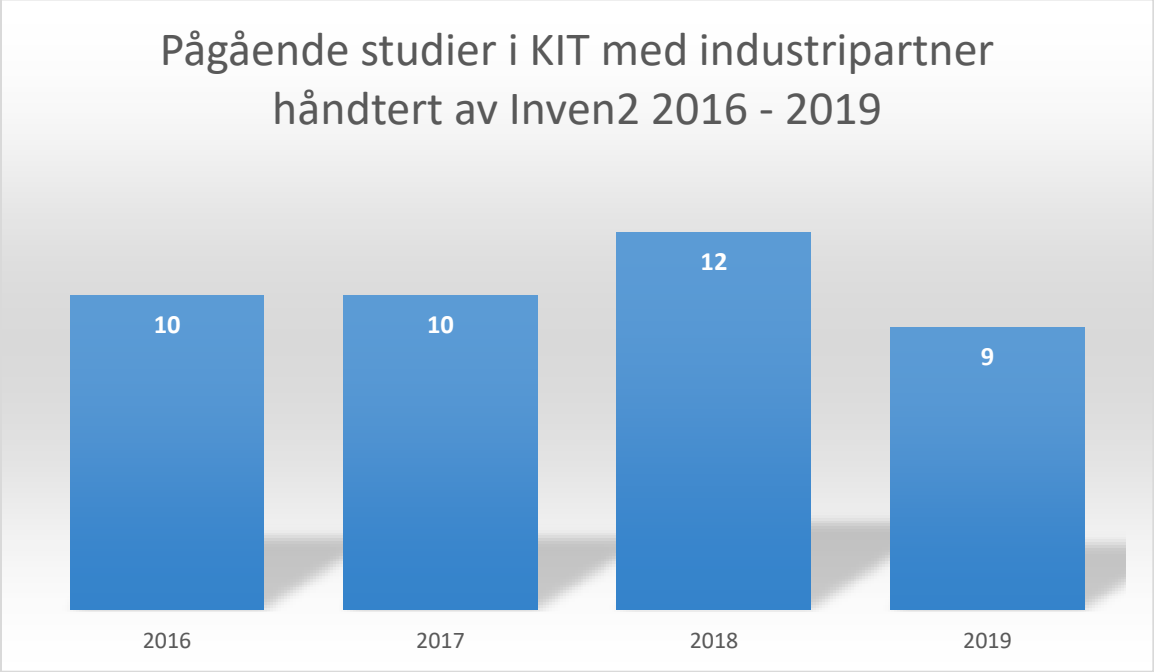
Forskningsaktivitet i KIT – 2019



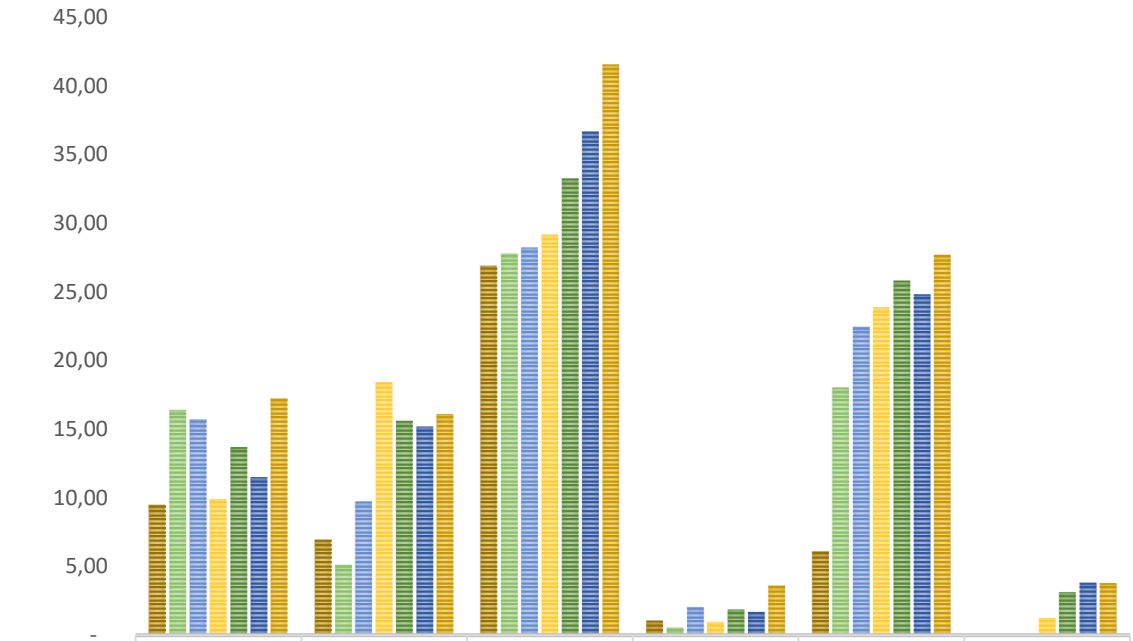
	KIT total	Department of Gastrointestinal and Paediatric Surgery (AGK)	AGK - Department of Paediatric Surgery	AGK - Section for Colorectal Surgery	AGK - Section for Hepatopancreatic & Biliary Surgery	AGK - Section for Upper Gastrointestinal Surgery	Department of Rheumatology, Dermatology and Infectious Diseases (RHI)	RHI - Dermatology Research Group	RHI - Rheumatology Research Group	Department of Transplantation Medicine (ATX)	ATX - Department of Nephrology RH	ATX - Department of Transplantation Surgery	ATX - Dept. of Gastroenterol. RH	ATX - Norwegian PSC Research Center	Department of Urology (URO)	Research Institute of Internal Medicine (IMF)
2016	261	58	3	14	20	0	77	8	19	98	31	10	38	27	20	76
2017	287	61	6	19	27	0	90	14	22	118	35	24	42	38	14	79
2018	263	60	5	23	23	0	75	14	20	108	32	31	19	21	19	71
2019	301	82	7	21	40	0	82	8	19	107	25	22	21	21	12	71

Forskningsaktivitet i KIT – 2019





Forskningsaktivitet i KIT – 2019



	AVD FOR GASTRO- OG BARNEKIRURGI	AVD FOR REVMAT., HUD- OG INFEKSJONSSYKD.	AVD FOR TRANSPLANTASJONSMEDISIN	AVD FOR UROLOGI	INST FOR INDREMED FORSKN	KIT STAB
Sum 2013	9,50	6,95	26,86	1,07	6,13	-
Sum 2014	16,40	5,14	27,77	0,57	18,03	-
Sum 2015	15,72	9,74	28,22	2,07	22,46	-
Sum 2016	9,89	18,40	29,14	0,97	23,85	1,24
Sum 2017	13,69	15,61	33,24	1,87	25,81	3,14
Sum 2018	11,51	15,18	36,66	1,72	24,80	3,84
Sum 2019	17,25	16,10	41,53	3,65	27,70	3,80

Forskningsgrupper i KIT – 2019

Gruppenavn	Gruppeleder	Avdeling
Avdeling for transplantasjonsmedisin		
Eksperimentell Transplantasjon for Kreft	Svein Dueland	ATX
Klinisk transplantasjonskirurgi og eksperimentell immunologi	Einar Martin Aandahl	ATX
Klinisk PSC forskningsgruppe (NoPSC)	Trine Folseras	ATX
Nyretransplantasjonsmedisin	Anders Hartmann	ATX
Eksperimentell Celletransplantasjon	Hanne Scholz	ATX
Klinisk Effektforskning	Mette Kalager	ATX
Forskningsgruppe for livskvalitet og helseøkonomi	Marit Helen Andersen	ATX
Nevroendokrine svulster	Espen Thiis-Evensen	ATX
Avdeling for revmatologi, hud og infeksjonssykdommer		
Hud	Jon Anders Halvorsen	RHI
Klinisk mikrobiologi og mikrobiota medisin	Marius Trøseid	RHI
Olafiaklinikken	Anne Olaug Olsen	RHI
Revmatologi	Øyvind Molberg	RHI
Institutt for indremedisinsk forskning		
Atherosklerose og relaterte metabolske sykdommer	Bente Halvorsen	IMF
Inflammasjon og hjertesvikt	Arne Yndestad	IMF
Inflammasjonsmarkører for hjertekar- og metabolske sykdommer	Thor Ueland	IMF
Eksperimentell leverforskning (NoPSC)	Espen Melum	IMF
Inflammasjonssykdommers genomikk og metagenomikk (NoPSC)	Johannes Hov	IMF
Immunopathogenetic mechanisms in immunodeficiency and infectious disorders	Børre Fevang	IMF
Avdeling for urologi		
Infeksjon og inflammasjon i urologi	Truls E. B. Johansen	URO
Prostatakreft	Viktor Berge	URO
Avdeling for gastro- og barnekirurgi		
Barnekirurgi	Kristin Bjørnland	AGK
Kolorektal kirurgi	Arild Nesbakken	AGK
Pancreaskreft	Knut Jørgen Labori	AGK
Svulster i lever og galleveier	Sheraz Yaqub	AGK
Øsafagus- og ventrikkelsykdommer	Egil Johnson	AGK

Forskningsutvalget i KIT - 2019

Forskningsutvalget i Klinikk for kirurgi, inflammasjonsmedisin og transplantasjon (KIT-FU) bestod av følgende medlemmer i 2019:

- Anders Åsberg (Avdeling for transplantasjonsmedisin)
- Kristin Bjørnland (Avdeling for gastro- og barnekirurgi)
- Gro Wiedswang (Avdeling for gastro- og barnekirurgi)
- Sheraz Yakub (Avdeling for gastro- og barnekirurgi)
- Ida Gregersen (Institutt for indremedisinsk forskning)
- Einar Marin Aandal (Avdeling for transplantasjonsmedisin)
- Viktor Berge (Avdeling for urologi)
- Hanne Scholz (Avdeling for transplantasjonsmedisin)
- Michael Bretthauer (leder av protokollutvalget, Helsam, Avdeling for helseledelse og helseøkonomi)
- Magnus Løberg (Helsam, Avdeling for helseledelse og helseøkonomi)
- Astrid Klopstad Wahl (Helsam, Avdeling for tverrfaglig helsevitenskap)
- Steinar Heldal (forskningsadministrativ leder KIT OUS)
- Kine Yttersian (administrativ koordinator KIT UiO)
- Morten Tandberg Eriksen (klinikkleder KIT)
- Tom Hemming Karlsen (forskningsleder, leder for KIT FU)

Handlingsplan for forskning i KIT for 2019

Arbeidsgruppeprosjekter 2019	Arbeidsgruppeledere FU (ref. OUS strategi)
• Identifisere og utrede tiltak for å øke antall kliniske studier i KIT, både industridrevne og forskerinitierte • Utarbeide «veikart» for håndtering av ulike typer kliniske studier i KIT, inkl. økonomihåndtering, tidsbruk for klinikere, praktiske rutiner, Inven2 osv. • Arbeidsgruppestørrelse: 4-8 personer, fortrinnsvis spredt over sentrale avdelinger i KIT med stort volum av kliniske studier, evt. Forskningsstøtte • Forfall sluttleveranse: 31. oktober 2019	Anders, Sheraz, Tom, Øyvind M. 1f, 1g, 2c, 2e, 5e
• Etablere et «forarbeid» som innspill til forespørsel om sentral prosess i OUS for etablering av strategi for translasjonsforskning på Gaustad-campus i OUS • Identifisere relevante faktorer som beskriver problematikk / utfordringer ved fravær av strategi med utgangspunkt i instituttutredningen og byggeprosess, og formulere fordeler og gevinster ved å etablere en slik strategi • Arbeidsgruppe: 3-6 personer, IIF + evt. andre klinikknære laboratoriemiljøer • Forfall sluttleveranse: 15. juni 2019	Espen (Bente), Hanne, Einar Martin 2d, 3a
• Gjennomføring av 3-årlig evaluering av forskningsgruppene ved Forskningsleder • Videreutvikle forskningsgruppene i klinikken gjennom etablering av kurs omkring relevante administrative prosesser • Arbeidsgruppe: Forskningsleder + evt. 3-4 personer etter evalueringen • Forfall sluttleveranse: 15. juni 2019	Tom, Steinar 3b
• Identifisere og gjennomføre tiltak for karriereutvikling for «Young Researchers», både innen klinisk og laboratoriebasert forskning • Utarbeide handlingskart for 2020 som finansieres av stimuleringsmidler 2020 • Arbeidsgruppe: 4-5 personer, hovedsakelig «YIs» • Forfall sluttleveranse: 30. november 2019	Sheraz, Magnus, Laura Valestrand, Anna Reisæter 1a, 2b, 3b
• Gjennomføre relevante internasjonaliseringstiltak i plan fra tidligere FU • Arbeidsgruppe: N/A • Forfall sluttleveranse: 1. november 2019	4c, 4a, (4d)
Løpende aktiviteter og samarbeidsmøter	
• Samarbeidmøte 2019: Patologisk avdeling • Oslo-Met: årlig helseforskningsseminar • Biobank ingeniører/sykepleiere samarbeidsmøte / biobankstasjoner • Budsjettprosesser / innmelding MTU	Tom Marit Helen Tom, Steinar Steinar

Department of Gastrointestinal and Children Surgery

(AGK)

- Barnekirurgi/ Pediatric Surgery
- Kolorektal kirurgi/ Colorectal Surgery
- Pancreaskreft/ Pancreatic Cancer
- Svulster i lever og galleveier/ Hepatobiliary malignacies
- Øsafagus- og ventrikkelsykdommer/ Diseases of esophagus and stomach

Forskningsgruppe: Barnekirurgi

Research group: Pediatric surgery

Avdeling: AGK

Gruppeleder: Kristin Bjørnland

Om gruppen: Hovedfokus er å studere somatiske og psykososiale langtidsresultater hos pasienter som er operert for gastrointestinale og urogenitale medfødte misdannelser. Pasientrapporterte data blir vektlagt. Vi undersøker også hvordan operasjonstekniske og behandlingsmessige faktorer påvirker somatiske, psykososiale og livskvalitetsparametre. Forskningsprosjektene har fokus på tverrfaglighet, og man har et bredt forskningssamarbeid nasjonalt og internasjonalt. Translasjonsforskning inngår ved at man studerer epigenetiske faktorers betydning ved Hirschpsrung sykdom og immunitet i tarmen hos barn.

About the group: The main focus is to study somatic and psychosocial long-term outcome in patients operated for congenital gastrointestinal and urogenital conditions and how surgical techniques and follow-up protocols influence these parameters. Patient reported outcomes are considered important outcome measures. In all projects there is a strong focus on interdisciplinary collaboration, and the group collaborates both nationally and internationally. Translational research includes epigenetic studies in Hirschpsrung disease and studies on the immune system in bowel specimens from neonates and small children.

Main members:

NAME	POSITION/TITLE/ROLE	EMPLOYER/ AFFILIATION	E-MAIL
Aksnes, Gunnar	Consultant, PhD, head of department ped surg	OUS	Gunnar.aksnes@ous-hf.no
Arntzen, Trine	Medical student research fellow	UiO	Trine.arntzen@studmed.uio.no
Bjørnland, Kristin	Consultant, Professor, Group leader	OUS, UiO	Kristin.bjornland@medisin.uio.no
Emblem, Ragnhild	Professor emeritus	UiO	Ragnhild.emblem@medisin.uio.no
Ertresvåg, Kjetil	Consultant	OUS	uxkjrt@ous-hf.no
Fyhn, Thomas	Clinical research fellow, MD	UiO	t.j.fyhn@medisin.uio.no
Hoel, Anders	PhD student	OUS	a.t.hoel@ous-hf.no
Jarøy, Emilie	Medical Stuent	UiO	e.jaroy@studmed.uio.no
Karlsen, Remi	Medical student research fellow	UiO	r.a.karlsen@studmed.uio.no
Kvello, Morten	PhD student	Uio	mkvello@gmail.com
Lundar, Live	Consultant/PhD Student, MD	UiO	Live.lundar@medisin.uio.no
Mikkelsen, Audun	Consultant/PhD Student, MD	UiO	Audun.mikkelsen@medisin.uio.no
Møinichen, Inger	Physiotherapist	OUS	umoinich@ous-hf.no
Skari, Hans	Consultant, PhD	OUS	Hans.skari@ous-hf.no
Stensrud, Kjetil	Consultant, PhD	OUS	kstensru@ous-hf.no
Valeberg, Marianne	Registrar	OUS	martei@ous-hf.no

Assosierte medlemmer / Associated members:

NAME	POSITION/TITEL/ROLE	EMPLOYER / AFFILIATION	E-MAIL
Andersen, Marit	Professor	OUS	Manderse@ous-hf.no
Austrheim, Astri	Stoma nurse	OUS	Astrid.ingerborg.austrheim@ous-hf.no
Birketvedt, Kirsti	Nutritionist	OUS	kbirkevt@ous-hf.no
Helene Gjone	Consultant child psychiatrist, PhD	OUS	hegjon@ous-hf.no
Diseth, Trond	Consultant, Professor	OUS, UiO	tdiseth@ous-hf.no
Gulseth, Eirik	Nurse, research fellow	OUS	eirgul@ous-hf.no
Haugen, Guttorm	Professor, gynecologist	OUS, UiO	ghaugen@ous-hf.no
Knatten, Charlotte	Consultant pediatrician, PhD	OUS	charlotte@knatten.org
Malt, Ulrik	Professor emeritus, psychiatrist	UiO	
Rehman, Yasser	Registrar surgeon	Lovisenberg	Ryasser@hotmail.com
Øresland, Tom	Professor emeritus, colorectal surgeon	Ahus	Tom.oresland@medisin.uio.no

Aktivitet i 2019: Internasjonalt samarbeid.
Det er økende internasjonalt samarbeid om forskningsprosjekter, hovedsakelig gjennom ERNICA, SIOPEN og The Nordic Pediatric Surgery Study Consortium. Codino studien, en europeisk multisenterstudie for sammenlikning av forskjellige behandlingsmodaliteter ved diafragmahernie, er i gang. Dessverre går inkludering tregt fordi få pasienter fyller inklusjonskriteriene. Gjennom ERNICA er det publisert og godkjent artikler om både øsofagusatresi og Hirschsprung. Via SIOPEN er det etter mange års arbeid oppnådd enighet om kirurgisk rapporteringsskjema for neuroblastom, og artikkel ble nylig antatt i Annals of Surgery. Samarbeid om studier hos pasienter med medfødte anorektale misdannelser har resultert i to artikler som er innsendt. En ny nordisk studie om langtidsresultater etter persisterende kloakk med PI på Karolinska sjukhuset har akkurat fått godkjenning fra REK og PVO og vil starte ila våren. Vi er invitert til å være med i utarbeidelse av ERAS retningslinjer for colorektal kirurgi hos barn. PI er Dr Kurt Heiss, Emory university, USA. The Nordic Pediatric Surgery Study Consortium er godt etablert med flere pågående studier.

Nasjonalt samarbeid: Vi har etablert samarbeid med barnekirurgisk avdeling på St Olavs Hospital om en nasjonal studie om langtidsresultater etter operasjon for anorektale misdannelser. Det har vært både fysiske og elektroniske møter. Dessverre er bemanning ved St Olav marginal, og midler som er bevilget til prosjektet fra Helse Midt, er ikke blitt benyttet pga bemanningsproblemer. Samarbeid med Bekkensenteret på AHus er godt etablert, og vi har fått nye samarbeidspartnere etter at Tom Øresland nylig ble pensjonert. Vi har en pågående studie om nytte av mestringskurs for voksne som er operert for anorektale misdannelser. Nasjonal studie om nekrotiserende enterokolitt fikk tildeling fra Helse Nord i 2019. PI er professor Klingenberg ved UNN. Delprosjekt om kirurgisk behandling vil OUS være ansvarlig for.

Nye medlemmer/tildelinger: Ingen nye medlemmer ila 2019. Av tildelinger fikk vi 200 000 fra UiO til leie av manometriutstyr, og stipendiat Anders Hoel fikk midler til utenlandsopphold for yngre forskere. Han var 2 uker på Karolinska sjukhuset. Hoel vant 5000 kroner for beste foredrag av yngre forsker på Europeisk barnekirurgikonferanse.

Pågående prosjekter: Det er fem pågående doktorgradsprosjekter; Thomas Fyhn: Sammenlikning mellom laparoskopisk og åpen fundoplikasjon (planlagt avsluttet 2020); Morten Kvello: Kirurgisk behandling av ernæringsvansker og gastroøsofageal refluks – sammenlikning av kirurgiske metoder (planlagt avsluttet 2020/21), Audun Mikkelsen: Langtidsresultater etter operasjon for øsofagusatresi; Live Lundar: Uretraklaffer hos barn, Anders Telle Hoel: Anorektale misdannelser – overgang fra ungdom til voksne. Fyhn er klinisk stipendiat og Hoel fulltidsforsker. De tre andre jobber parallelt med fullt klinisk arbeid for å avsluttet avhandlingen. Gruppen har to forskerlinjestudenter; Remi Andre Karslen (Resultater etter operasjon for HIrschpsrung sykdom) og Trine Arntzen (Prenatal diagnostikk ved øsofagusatresi). Begge hadde fulltidsår i 2019 og fortsetter på deltid. For øvrig er flere av gruppens medlemmer involvert i diverse kvalitetsstudier som omhandler de pasientkategorier barnekirurgisk avdeling behandler. Det er også medisinstudenter knyttet til noen av prosjektene,

Gruppens medlemmer var forfattere på 10 publikasjoner i 2019; i syv publikasjoner var førsteforfatter fra vår forskningsgruppe, mens i tre publikasjoner var gruppemedlemmer medforfattere i publikasjoner utgående fra ERNICA eller The Nordic Pediatric Surgery Study Consortium.

Research group: colorectal surgery
Avdeling: Dept Gastrointestinal surgery and pediatric surgery

Group leader: Arild Nesbakken

About the group:

Short description of research profile / specific aims:

We are mainly performing translational research on colorectal cancer in a multidisciplinary team with dedicated researchers from clinical medicine and biology covering many fields - colorectal surgery, hepatobiliary surgery, oncology, radiology, pathology and molecular biology. We have excellent cooperation with The Department of Molecular oncology and the The Micrometastases Laboratory at The Institute of Cancer research, OUS – Radium hospital

The specific aims are to develop new molecular diagnostic, prognostic, predictive and monitoring biomarkers.

In order to reach our goals we have collected and are continuously collecting (high quality procedure) fresh tumour tissue, formalin fixed tissue, normal tissue and blood/serum to large biobanks, together with high quality, comprehensive clinical datasets for colorectal primary cancer, colorectal liver metastases, blood and bone marrow from population based, unselected, large series of patients.

We are aiming at establishing even stronger national and international collaboration
We are also running several clinical research projects together with geriatricians on the prevalence of complications in elderly crc patients, and the aim is to establish geriatric assessment tools to estimate the risk of - and to establish methods to prevent - such complications
We are running other smaller projects on colorectal and anal diseases and we are partners in a project on health economy related to treatment of colorectal cancer.

Hovedmedlemmer / Main Members:

NAME	POSITION/TITLE/ROLE	EMPLOYER/ AFFILIATION	E-MAIL
Arild Nesbakken	Professor II / Senior consultant	OUS and UiO	arild.nesbakken@medisin.uio.no
Ole Helmer Sjo	MD PhD / Senior consultant	OUS	ole.sjo@ous-hf.no
Tuva Høst Brunsell	MD PhD research fellow	UiO	t.h.brunsell@medisin.uio.no
Morten Tandberg-Eriksen	Ass Professor /Senior consultant	OUS and UiO	sbermo@ous-hf.no
Tom-Andreas Wik	Senior consultant	OUS	uxwikt@ous-hf.no
Tom Glomsaker	Senior consultant	OUS	tomglo@ous-hf.no
Ingeborg F. Backe	Study nurse / Master nursing	OUS	ingbac@ous-hf.no
Gro Wiedswang	Post doc / Senior consultant	OUS	uxgrie@ous.hf.no
Lars Thomas Seeberg	Senior consulting	Vestfold HT	lts@gmail.com

Assosierte medlemmer / Associated members:

NAME	POSITION/TITEL/ROLE	EMPLOYER/ AFFILIATION	E-MAIL
Egil Johnson	Professor II / senior consultant	OUS and UiO	
Bjørn A. Bjørnbeth	MD PhD / Senior consultant		
Kristoffer Watten Bruvik	MD PhD / Senior Consultant	OUS	
Maria Magdalena Kowalewska-Hibyeli	Study nurse	OUS	
Tom Mala	MD PhD / senior consultant	OUS	
Kjetil Tasken	Professor / Centre Director	OUS	
Ragnhild A Lothe	Professor	OUS and UiO	
Guro Elisabeth Lind	Ass Professor	OUS and UiO	
Anita Sveen	PhD	OUS	
Håvard Danielsen	Professor	OUS and UiO	
Tarjei S Hveem		OUS	
Aud Svindland	Professor emeritus	UiO	
Marianne G Guren	MD PhD / senior consultant	OUS	
Tormod K Guren	MD PhD / senior consultant	OUS	
Olav Dajani	MD PhD / senior consultant	OUS	
Siri Rostoft	Ass Prof / senior consultant	OUS	
Nina Ommundsen	PhD Research fellow	OUS	

Activity in 2019:

We have not arranged any meetings in the group as a whole (main members and ass members), but several meetings in the collaborative group led by Arild Nesbakken / Ragnhild A Lothe (KG Jebsen centre) studying tumor heterogeneity, biomarkers, and drug sensitivity testing of living, patient derived cancer cells from liver metastases. Website: www.colorectal.no

Gro Wiedswang and Bjørn Naume's group have meetings with participants in their project.

Ole H Sjo is leading the LapConor project, an education program for young surgeons in laparoscopic colorectal surgery, planning research projects as part of that program.

Arild Nesbakken arranges a two-day course on biomedical research for young surgeons in the department twice a year.

Some highlights of activity:

- Biobanking and running clinical databases for all patients operated in our hospital for primary colorectal cancer and for liver metastases from colorectal cancer
- Collecting liquid biopsies to monitor relapse in curatively operated colorectal cancer patients
- Participate in Bioman – a national multicenter study with tissue micro arrays of colorectal cancer operated in several hospitals and clinical data from Norwegian Cancer registry
- Grow living tumor celles from liver metastases in organoids and perform drug sensitivity testing (typically to some 50 different chemotherapeutic agents and targeted drugs)
- Register all patients who undergo local excision for early rectal cancer (transanal endoscopic surgery)
- Run several clinical quality registries
- Comprehensive geriatric assessment for risk prediction in frail patients

Publications 2019 : 16 (A Nesbakken / RA Lothe collaboration and ESCP collaborative group)

PhD: 1 disputation, 2 Thesis submitted for evaluation

Forskningsgruppe: Pancreaskreft

Research group: Pancreatic cancer

Avdeling: Avdeling for gastro- og barnekirurgi

Gruppeleder: Knut Jørgen Labori

Om gruppen:

Forskningsgruppen arbeider med klinisk onkologisk forskning ved pancreaskreft, både innen kirurgisk og medikamentell behandling. En betydelig del av forskningen er translasjonsforskning. Gruppens medlemmer arbeider innen flere fagfelt som kirurgi, onkologi, gastroenterologi, patologi og molekylærbiologi. Hovedmålet er å bedre diagnostikk og behandling og derav prognosen for pasienter med pancreaskreft. Translasjonsforskningen baserer seg på tumorvev og blodprøver fra pasienter som behandles ved OUS og arbeider med å kartlegge biologiske prosesser og identifisere biomarkører ved pancreaskreft. Det er utstrakt nordisk og internasjonalt samarbeid innen flere kliniske og translasjonsprosjekter. Forskningsgruppen har etablert en biobank for samling av tumorvev og blodprøver med tilhørende database og et klinisk register for pasienter som blir operert for pancreakreft ved OUS.

About the group:

The research group is an interdisciplinary forum that perform clinical trials and translational research on pancreatic cancer and pancreatic cysts. The research group studies the importance of environmental and genetic factors in cancer development, prognostic and predictive factors, early diagnosis, and the efficacy of surgical- oncological- and symptomatic treatment. Patients with pancreatic tumors treated at Oslo University Hospital is requested consent for storage of biological material and clinical data for use in research. The research group has established a clinical data registry and a biobank with an associated database. This ensures a systematic, prospective registration of patients with pancreatic cancer who are being treated at the hospital. Clinical registry contains relevant clinical and histopathological data from routine diagnostics. Biobank database contains the results of clinical and molecular research.

Hovedmedlemmer / Main members:

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Aktivitet i 2019 / Activity in 2019:

Projects:

Thematic pancreatic tumour project:
Oslo University Hospital has established a multidisciplinary research program for patients undergoing investigation for a solid or cystic pancreatic or periampullary neoplasm. Through this project the research group has established a clinical data registry and a biobank with an associated database. Patients undergoing surgical resection are asked for written informed consent to approve sampling of blood and tumour tissue for biobanking and to collect clinical data during hospital admissions or outpatient clinic visits.

Clinical trials:
NorPACT-1: Nordic multicentre un-blinded phase II randomized controlled trial. Patients with resectable adenocarcinoma of the pancreatic head are randomized to receive either surgery first (control) or neoadjuvant chemotherapy (intervention) with four cycles FOLFIRINOX followed by resection. Ongoing from March 2017. PI: Knut Jørgen Labori
NorPACT-2: NorPACT-2 is a single arm prospective study of borderline and locally advanced pancreatic cancer, in which eligible patients undergo neoadjuvant treatment possibly followed by surgical exploration and resection. Ongoing from January 2018. PI: Knut Jørgen Labori
Bolt-on to NorPACT 1 and 2 is a translational research program based on tumour tissue and plasma (PIs: professor Elin Kure and professor Caroline Verbeke) that aims at identifying factors that are predictive of response to neoadjuvant therapy, the risk of distant cancer spread, and patient outcome.
DIPLOMA trial: Pan-European, randomized controlled, multicenter, patient-blinded non-inferiority trial comparing minimally invasive distal pancreatectomy to open distal pancreatectomy for pancreatic cancer. Patients with resectable adenocarcinoma of the pancreatic body or tail are randomized to undergo either minimally invasive or open distal pancreatectomy. Ongoing from December 2018. PI: professor Bjørn Edwin
MINIMUM study: Single centre randomized controlled trial. Patients undergoing pancreato-duodenectomy are randomized to receive either standard intraperitoneal drain policy (control) or microdialysis cathether (intervention) + intraperitoneal drain and the surgeon intervenes based on the predetermined values of microdialysis results and traditionally symptoms/signs. PI: professor Tor Inge Tønnessen

Thesis:
Dyre Kleive, MD PhD, University of Oslo, June 2019 : "Major vein resection during pancreatic surgery - an evaluation of surgical safety, reconstructive strategies and pathological findings". Supervisor: Knut Jørgen Labori

Ongoing PhD projects:
Stina M. Stålberg, MD: "Plasma exosomes and their cargo in relation to tumor profiles in pancreatic and colorectal cancers". Supervisor: professor Elin Kure
Inger Marie Bowitz Lothe, MD: "Molecular profiling of precursor lesions and tumours from the pancreatic head". Supervisor: professor Elin Kure
Bart Baekelandt, MD: "Management of pancreatic and periampullary tumors – consequences for survival and patient reported outcome". Supervisor: professor Trond Buanes
Ingvild Farnes, MD: "New treatment approaches for resectable, recurrent and locally advanced pancreatic cancer". Supervisor: Knut Jørgen Labori
Harald Hugenschmidt, MD: "Tumour biology and prognostic factors in pancreatic cancer". Supervisor: Gro Wiedswang
Kim Ånonsen, MD: "Cystic pancreatic lesions". Supervisor: Associate professor Truls Hauge

Forskningsgruppe: Svulster i lever og galleveier

Research group: Hepatobiliary malignancies

Avdeling: Avd for gastro- og barnekirurgi, Seksjon for HPB kirurgi

Gruppeleder: Sheraz Yaqub

Om gruppen:
Gruppens primære mål er å tilby pasienter med kreft i lever og galleveier den fremste behandlingen og dermed inkludere dem i både kliniske og translasjonsforsknings prosjekter. Gruppen har også et stort klinisk register som brukes for å evaluere/forbedre kvaliteten på behandlingen vi tilbyr.

About the group:
The main aim of the research group is to conduct clinical and translational studies for the treatment of hepatobiliary malignancies. The group has also register-based studies to evaluate and improve patient treatment.

Hovedmedlemmer / Main members:

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Aktivitet i 2019 / Activity in 2019:

The research group has regularly meetings every month where progress of on-going projects as well as new projects are presented. Both main and associated members are invited.

Ongoing projects:

- The ASAC study, Scandinavian multicentre, placebo-controlled, randomized trial, initiated by our group, investigating the role of aspirin as adjuvant after surgery for colorectal liver metastases, is still recruiting patients and has now 300 of 800 patients included (www.asac.no). The trial is funded by Research Council of Norway, Norwegian Cancer Society, and KLINBEFORSK.
- The LIGRO study, Scandinavian multicentre, randomized study investigating portal vein embolization vs ALPPS as a method for promoting growth of liver remnant prior to large liver resections. Primary results are published and sub-analyses are still going on to find the best treatment method.
- The Oslo COMET trial, single centre, un-blinded, randomized trial comparing laparoscopic and open surgery for colorectal liver metastases. The primary end-point is published and sub-analyses and sub-studies are still going on.
- The SMART study, is a translational study on colorectal cancer and liver metastases led by Profs Ragnhild Lothe and Arild Nesbakken.

Planned projects:

- EXCALIBUR trial; single centre, un-blinded, three-armed randomized trial for patients with high load of colorectal liver metastases, treated with 1)liver transplantation 2)liver resection 3)hepatic artery infusion of chemotherapy. The trial is approved by the Ethical committee and Norwegian Medicinal Agency and planned to be initiated in 2020.
- Precision Medicine in Early Diagnostics and Therapy of Biliary Tract Cancer; is a collaborative project between several groups and Sheraz Yaqub has received a career grant from Helse Sør-Øst to build up this platform, initiating in Q4 2020.
- TESLA trial: Liver Transplantation for Non-Resectable Intrahepatic Cholangiocarcinoma: a prospective exploratory trial; this is a collaborative study between several groups at OUH-KIT treating patients with cholangiocarcinoma, initiating in 2020.

Forskningsgruppe: Øsofagus- og ventrikkelsykdommer

Research group: Diseases of esophagus and stomach

Avdeling: Avd. for gastro- og barnekirurgi, OUS, Ullevål

Gruppeleder: Egil Johnson

Om gruppen:
Hensikten med gruppen er:

1. Å evaluere (kvalitetssikre) eksisterende kirurgisk behandling av sykdommer i øsofagus og ventrikkel, så vel som brokk med siktemål å definere forbedringsområder (f. eks. robot-assistert kirurgi/nye typer nettplastikker).
2. Å delta i forskningstudier innen fagfeltet, både klinisk og molekylært for å forbedre behandlingen (f. eks biomarkører for tidlig deteksjon av kreft/type neoadjuvant/perioperativ behandling/type definitiv onkologisk behandling).

About the group:
Purpose of the group is:

1. To evaluate by quality assurance existing surgical treatment of diseases of esophagus and stomach, as well as hernia, in order to improve treatment (e.g. robotic assisted surgery/new mesh techniques).
2. To participate in research studies within this field, both clinically and by molecularly in order to improve treatment (e.g. biomarkers for early detection of cancer/type of neoadjuvant/perioperative traeatment/type of definitive oncologic treatment)

Hovedmedlemmer / Main members:

NAME	POSITION/TITLE/ROLE	EMPLOYER/ AFFILIATION	E-MAIL
Egil Johnson	Professor II / Senior consultant/leader	OUS and UiO	Egil.johnson@ous-hf.no
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Aktivitet i 2019 / Activity in 2019:

Projects:

NeoRes II, Scandinavian multicenter randomized study evaluating effect of awaiting surgery after chemoradiotherapy (CROSS regimen) for 4-6 versus 10-12 weeks is terminated and results planned for publication.

Continual monitoring of complications and survival (quality assurance) following resection for esophageal- and gastric cancer

Continuous biobanking of blood samples and tumor tissue ((esophageal cancer (n= 380), gastric cancer (n=260)) to a biobank since 2013 for research purposes. Analyses of biobank material have been ongoing since 2019.

Manuscript on results (survival/compications) from hybrid resection of esophageal cancer is accepted in Acta Oncol (PhD study).

Studies on esophageal cancer on biomarkers /local treatment of dysplasia and early cancer/total minimally invasive resection for more advanced cancer are ongoing (PhD study)

A pilot project on to studying microcirculatory changes in the gastric tube before, under and after surgery for esophageal cancer has been completed. Results are planned for publication.

The INNOVATION study. European randomised multicenter study, in which patients with HER-2 positive gastric cancer were randomized in three arms for i) chemotherapy, ii) chemotherapy with trastuzumab or iii) chemotherapy with trastuzumab+pertuzumab. End point is overall survival. EORTC study. Inclusion is still ongoing.

INTENSE study. Effect of perioperative use of chemotherapy (FOLFIXFLIRI) in patients with resectable gastric and gastroesophageal junction adenocarcinoma. Ongoing inclusion.

NEEDS study. Neoadjuvant chemoradiotherapy for esophageal squamous cell carcinoma versus definitive chemoradiotherapy with salvage surgery as deeded. Ongoing inclusion.

Keynote 061 (randomised study with palliative chemmotherapi in 2. line for gastric cancer; standard chemotherapy vs. MK3475. MSD study. Inclusion from August 2015.

Keynote 180 (phase II study, palliative chemotherapy in 3. line for esophageal cancer; MK3474). MSD study. Inclusion from January 2016.

Keynote 181 (randomised phase III study, palliative chemoterapy in 2. line for esophageal cancer; standard chemotherapy vs MK3475). MSD study. Inclusion from January 2016.

Nordic NEC registry (registry study for all patients with neuroendocrine carcinoma of the GI-tract (GEP-NEC)). Inclusion from 2013. NNTG (Nordic Neuroendocrine Tumor Group). See reference 3 in the publication list (GO Hjortland is co-author).

ET-NEC. Nordic one armed phase II study for patients with GEP-NEC, Ki67 index 20-55%, first line treatment with everolimus and temozolomid. Inclusion from October 2014. NNTG study.

Meetings: There has been two group meetings and two meetings in the scandinavial esophageal and gastric cancer group. Participated with 4 abstracts on national (n=3) an international (n=1) meetings

Publications: 8 original publications international journals, 4 abstracts

Department of Rheumatology, Dermatology and Infectious Diseases (RHI)

- Hud/ Dermatology Research Group
- Klinisk mikrobiologi og mikrobiotamedisin/ CliMic: Clinical microbiology and microbiota medicine
- Olafiaklinikken
- Revmatologi / Rheumatology

Forskningsgruppe: Hud

Research group: Dermatology Research Group

Avdeling: RHI

Gruppeleder: Olav Sundnes

Om gruppen: Vår forskning fokuserer på hudkreft, hudinflammasjon, hudens mikrosirkulasjon og livskvalitet/epidemiologi.

About the group: Our research is mainly focusing on the following four topics: skin cancer, skin inflammation, skin microcirculation and quality of life/epidemiology.

Hovedmedlemmer / Main members:

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Assosierte medlemmer / Associated members:

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Karin Lødrup Calsen	Professor	UiO	

Activity in 2019:

Ongoing PhD-projects:

- PhD-project Mohammad Rizvi, Skin cancer in organ transplant recipients. Expecting dissertation in 2020 (Main supervisor Gjersvik).
- PhD-project Kuan Yang, Metabolic regulation of the NLRP3 inflammasome, Expecting dissertation in 2020 (Main supervisor Sandanger)
- PhD-project Eva Rehbinder, Skin and amniotic fluid microbiome and atopic dermatitis, expecting dissertation in 2020 (Main supervisor Landrø)
- PhD-project Astrid Lossius, Early gene expression changes as predictors of therapeutic response to narrow-band UVB in atopic dermatitis, in progress (Main supervisors Holm)
- PhD-project Olav Gramstad, hereditary angioedema, in progress (Main supervisor Landrø)
- PhD-project Siri Hansen Stabell, hidradenitis suppurativa, in progress (Main supervisor Sundnes)

Ongoing clinical trials and other research projects:

- Dermareg – register on skin diseases and biobank for skin diseases (Bergersen)
- Treatment of genital lichen planus in women. Investigator-initiated RCT on oral treatment with the apremilast for genital erosive lichen planus (Helgesen)
- Moderate to Severe Atopic Dermatitis: Evaluation of Upadacitinib in Combination with Topical Corticosteroids in Adolescent and Adult Subjects" (Abbvie) (Berents)
- A NORwegian multicentre trial assessing the effectiveness of tailoring infliximab treatment by therapeutic DRUg Monitoring (NOR-DRUM) (Sandanger)
- An Observational Post-authorization Safety Study of Ustekinumab(Janssen) in the Treatment of Pediatric Patients Aged 12 Years and Older with Moderate to Severe Plaque Psoriasis (Sitek)
- European prurigo project (Halvorsen)
- Finger pulp blood flow in systemic sclerosis patients with digital ulcers treated with sympathetic blockade (Bergersen).

Selected Key Publications:

Rehbinder EM, Winger AJ, Landrø L, Asarnoj A, Berents TL, Carlsen KH, Hedlin G, Jonassen CM, Nordlund B, Sandvik L, Skjerven HO, Söderhäll C, Vettukattil R, Carlsen KCL, PreventADALL study group (2019)
Dry skin and skin barrier in early infancy
Br J Dermatol, 181 (1), 218-219

Rehbinder EM, Advocaat Endre KM, Lødrup Carlsen KC, Asarnoj A, Stensby Bains KE, Berents TL, Carlsen KH, Gudmundsdóttir HK, Haugen G, Hedlin G, Kreyberg I, Nordhagen LS, Nordlund B, Saunders CM, Sandvik L, Skjerven HO, Söderhäll C, Staff AC, Vettukattil R, Værnesbranden MR, Landrø L, study group, Carlsen MH, Lødrup Carlsen OC, Granlund PA et al. (2019)
Predicting Skin Barrier Dysfunction and Atopic Dermatitis in Early Infancy
J Allergy Clin Immunol Pract, 8 (2), 664-673.e5

Endre KMA, Rehbinder EM, Carlsen KL, Carlsen KH, Gjersvik P, Hedlin G, Jonassen CM, LeBlanc M, Nordlund B, Skjerven HO, Staff AC, Söderhäll C, Vettukattil R, Landrø L, study group (2019)
Maternal and paternal atopic dermatitis and risk of atopic dermatitis during early infancy in girls and boys
J Allergy Clin Immunol Pract, 8 (1), 416-418.e2

Rizvi SM, Veierød MB, Mørk G, Helsing P, Gjersvik P (2019)
Ablative Fractional Laser-assisted Daylight Photodynamic Therapy for Actinic Keratoses of the Scalp and Forehead in Organ Transplant Recipients: A Pilot Study
Acta Derm Venereol, 99 (11), 1047-1048

Torp MK, Yang K, Ranheim T, Husø Lauritzen K, Alfsnes K, Vinge LE, Aukrust P, Stensløkken KO, Yndestad A, Sandanger Ø (2019)
Mammalian Target of Rapamycin (mTOR) and the Proteasome Attenuates IL-1β Expression in Primary Mouse Cardiac Fibroblasts
Front Immunol, 10, 1285

Forskningsgruppe: Klinisk mikrobiologi og mikrobiotamedisin

Research group: CliMic: Clinical microbiology and microbiota medicine

Avdeling: Reumatologi, hudsykdommer og infeksjonssykdommer (RHI)

Gruppeleder: Marius Trøseid

About the group:
Marius Trøseid is leading a research group on Clinical Microbiology and Microbiota Medicine (CliMic) at Department of Rheumatology, Dermatology and Infectious diseases at Oslo University Hospital, Rikshospitalet. In this environment, we have developed a sequencing-based microbiota profiling pipeline including bioinformatics methods and applied it in multiple conditions, including HIV and cardiovascular disease. We have also established a regional research network (ReMicS: Regional research network for clinical Microbiota Science) and are hosting a yearly national microbiota conference (www.microbiota.no). Our scientific focus is the role of the gut microbiota in chronic infectious, inflammatory and metabolic diseases, including cardiovascular disease. The aim is to better understand the contribution of the gut microbiome in order to lay the foundation for clinical microbiota medicine, i.e. medical practice based on stratification or modulation of gut microbial composition or function.

Hovedmedlemmer / Main members:

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Activity in 2019:

ONGOING AND COMPLETED PROJECTS

- COMicS (Copenhagen-Oslo Co-morbidity and Microbiota Study in HIV infection). Planned as the largest prospective microbiome study in HIV-infected individuals. This project was finalized during 2019, with first paper accepted for publication (Gelpi M & Vestad B, et a.l Impact of HIV-related Gut Microbiota alterations in Metabolic Comorbidities. Clin Inf Dis 2019)

- GutHeart (Targeting the gut microbiota to treat heart failure). The first adequately powered RCT targeting the gut microbiome aiming to improve cardiac function in heart failure patients, comprising n=150 patients. Also this ambitious project was finalized during 2019, with manuscript drafted and ready for submission early 2020.

- Targeting the NLRP3 inflammasome in HIV infection. The aim is to explore whether inflammasome activation is enhanced during HIV infection, and if so, if inflammasome activation could explain increased cardiovascular risk in HIV-infected individuals. Several papers have been published from this ongoing project (Hoel H, et al. Soluble markers of IL-1 activation as predictors of first-time myocardial infarction in HIV-infected individuals. J Inf Dis 2019).

- In collaboration with the group of Johannes Hov we have established the regional research network ReMicS (Regional research network for clinical Microbiota Science), encompassing > 25 research groups.

- Also in collaboration with Johannes Hov group, we have got funding for a Focused research area at Oslo University Hospital, where the main goal is to establish a therapeutic feces donor bank with relevance for ongoing microbiota research and clinical treatment of *C Difficile* infection.

- We have recently received funding through the Era-Net for managing a WP on multi-level integrated bioinformatics in the SCRATCH consortium (Microbiota-based SCReening of Anal Cancer in HIV-infected individuals), aiming to improve diagnostic screening of HIV-associated anal cancer, taking microbiota profiling one step closer to clinical practice.

- We have also received NRC funding for the project “Targeting the gut heart axis”, and have hired a post doc bioinformatician who will start first half of 2020. A common theme in this project and SCRATCH is to develop integrated multi-level bioinformatics of metagenomics, metabolomics and proteomics analyses.

Forskningsgruppe: Olafiaklinikken

Research group: Olafiaklinikken

Avdeling: Avdeling for revmatologi, hud og infeksjonssykdommer

Gruppeleder: Usha Hartgill

Om gruppen:

Forskningsgruppen studerer smittemekanismer, utbredelse, diagnostikk og behandling av kjønnssykdommer. Olafiaklinikken i Oslo sentrum har et åpent poliklinisk tilbud for diagnostikk og behandling av kjønnssykdommer. Som Nordens største klinikk innen venerologi har vi opparbeidet er stor og unik database som gir svært gode forutsetninger for å drive epidemiologisk forskning. Med stort pasienttilfang er det godt tilrettelagt for forskning relatert til diagnostikk og behandling på områder der det er behov for ny kunnskap.

About the group:

Olafiakliniken is the largest clinic for sexually transmitted infections in the Nordic region. We have a unique access to a large patient population with a variety of background characteristics, symptoms, clinical findings and infections.
We also hold the function as the National Advisory Unit on Sexually Transmitted Infections, and therefore our research focus is on clinical studies providing results to support evidence based medicine and guidance for treatment practice.

Hovedmedlemmer / Main members:

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Aktivitet i 2019 / Activity in 2019:

Publications

- Jahr SH, Myro AZ, Vegge K, Campbell P. A man in his forties with acute onset of speech impairment and unilateral paresis. Tidsskr Nor Laegeforen 2019 12 10;139(18). Epub 2019 des 4. PMID:31823567

Projects

- “Gonorrhoea – an urgent and major treat to public health". Jørgen Vildershøj Bjørnholt, Universitetet i Oslo, Project period:2018 – 2022, Participating health region:HSØ
- Evaluation of implementation of pre-exposure prophylaxis (PrEP) in subjects at particular risk of infection with HIV, Frank Olav Pettersen, Oslo universitetssykehus HF, Project period:2017 – 2022, Participating health region:HV HSØ
- Turning the tide of Antimicrobial resistance (TTA), Fredrik Muller, Oslo universitetssykehus HF, Project period:2016 – 2023, Participating health region:HSØ

Forskningsgruppe: Revmatologi

Research group: Rheumatology

Avdeling: Revmatologi, hud og infeksjon (RHI)

Gruppeleder: Øyvind Molberg

Om gruppen:
Vi arbeider primært med pasient-nær klinisk forskning, men har også et økende antall prosjekter som inkluderer mekanistiske problemstillinger. Forskningen er fokusert på systemiske, inflammatoriske multi-organ sykdommer hos barn og voksne, Disse sykdommene har et bredt spekter av kliniske manifestasjoner, men felles for alle de er alle er at de er heterogene, har høy sykdomsbyrde, er preget av svingende og uforutsigbare sykdomsforløp, og reduser forventet livslengde.
Ut i fra en overordnet målsetning om å bidra til bedre og mer presis behandling av disse system-sykdommene har vi definert tre satsningsområder; (i) prospektive, høy-oppløselighetsstudier av forløp og organkomplikasjoner i komplette, populasjons-baserte pasientkohorter. (ii) Identifikasjon av prognostiske og prediktive biologiske markører, inkludert bildediagnostiske markører og (iii) utvikling av forskerdrevne kliniske intervensjonsstudier. Akkurat nå har vi særlig fokus på systemisk sklerose og juvenil idiopatisk artritt (barneleddgikt), men vi har også pågående, mindre prosjekter på flere andre systemsykdommer.

About the group:
The research group is conducting clinical and translational research on juvenile- and adult-onset systemic, multi-organ inflammatory rheumatic syndromes; a heterogeneous group of chronic, relapsing-remitting disorders characterized by high disease burden and reduced survival. With a long-term aim of better and more precise therapeutic targeting of systemic inflammatory disorders, we have three major focus areas; (i) prospective studies of complete, population based patient cohorts at high resolution, and in multiple dimensions, (ii) identification of prognostic and predictive biomarkers, and (iii) development of investigator initiated clinical trials. Current priorities include, but are not limited to, nationwide studies on systemic sclerosis and juvenile idiopathic arthritis.

Hovedmedlemmer / Main members:

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Aktivitet i 2019 / Activity in 2019:

Important Scientific milestones in 2018

- Secured funding from Research Council of Norway for investigator initiated nationwide, RCT on optimized therapy for juvenile idiopathic arthritis (JIA). Completed protocol for RCT and plan to start the study late in 2020.
- Completed first draft of complete ultrasound (US) atlas for JIA, Atlas depicts normal findings and graded synovitis score for all joints possible to assess by US in children of different age groups. First studies planned for 2020
- Completed work on nationwide, population based Systemic Sclerosis cohort, with primary analyses focused on interstitial lung disease (ILD).
- Identified impact of pulmonary function and CT scores on mortality. Study, with first and last author from our group, published in American Journal of Respiratory and Critical Care Medicine, the highest ranked lung medicine journal worldwide.
- Completed international collaborative study on circulating biomarkers associated with ILD in Systemic Sclerosis. Study, with shared first author from our group published in Arthritis and Rheumatology, one of the top three ranked rheumatology journals worldwide.
- Completed protocol for investigator initiated randomized early phase clinical trial (RCT) on standardized fecal microbiota transplantation in Systemic Sclerosis. The RCT, funded by KLINBEFORSK, is planned to start in 2020
- Secured funding for second PhD student to join large-scale work on population-based systemic lupus erythematosus (SLE) cohort.
- Completed collaborative project on imaging of sin-nasal afflictions in ANCA-associated vasculitis. First results published in 2019.
- Completed project on quality of life and medication adherence in long-standing JIA. Primary results published in 2019.
- Published primary data from follow-up study on cardiopulmonary afflictions in juvenile dermatomyositis. PhD on this work defended in 2019.

Publications

Members of the group co-authored 32 full-length papers in international, peer-reviewed journal in 2019. On 17 of these papers, the first and/or last author was from the Rheumatology research group

Doctoral degrees in 2019:

- Kristin Schjander Berntsen; Physical Fitness in Long-Term Juvenile Dermatomyositis

Department of Transplantation (ATX)

- Eksperimentell transplantasjon for kreft / Experimental Transplantation and Malignancy
- Klinisk transplantasjonskirurgi og eksperimentell immunologi / Clinical transplantation surgery and experimental immunology
- Klinisk forskningsgruppe for primær skleroserende kolangitt / Clinical PSC Research Group
- Nyretransplantasjonsmedisin / Kidney Transplantation
- Eksperimentell Celletransplantasjon / Experimental Cell Transplantation
- Klinisk Effektforskning / Clinical Effectiveness Research Group
- Forskningsgruppe for livskvalitet og helseøkonomi / Quality of life and Health Economics
- Nevroendokrine svulster / Neuroendocrine tumors

Forskningsgruppe: Eksperimentell transplantasjon for kreft

Research group: Transplantation and Malignancy

Avdeling: Avdeling for transplantasjonsmedisin

Gruppeleder: Svein Dueland

Om gruppen:
Gruppen arbeider med levertransplantasjon hos pasienter med malign sykdom og spredning utelukkende til lever. Aktuelle pasienter har så omfattende sykdom i lever at vanlig leverkirurgi ikke er aktuelt. Behandlingsalternativet hos pasienter som er aktuelle for inklusjon i de ulike levertransplantasjonsstudiene er palliativ kjemoterapi. Median forventet overlevelse på kjemoterapi hos inkluderte pasienter har vært omtrent 1 år ved tidspunkt for levertransplantasjon. Forskningsgruppen består av transplantasjonskirurger, onkologer, radiologer, nukleærmedisinere, thoraxkirurg, gastrokirurg(leverkirurg)og sykepleier/forsker. Gruppen har etablert samarbeid med helseøkonomer.

About the group:
The research group is exploring liver transplantation as a treatment option for patient with different malignant diagnoses, primarily patients with colorectal cancer. Patients that may be included in the different liver transplantation protocols have non-resectable liver only disease. The treatment option today for these patients is palliative chemotherapy with median expected overall survival of about one year at time of inclusion in the liver transplantation studies. Members of the research group are transplant surgeons, oncologists, radiologists, nuclear medicine specialists, liver surgeon and thorax surgeon. Research projects also include health economic expertise.

Hovedmedlemmer / Main members:

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Collaboration

Internal (other groups, departments, clinicians, etc.):

- Trygve Syversveen and Mona-Elisabeth Revheim , Department of Radiology, OUS

National:

- Gudrun Bjørnelv , The Institute of Health and Society, UiO
- Eline Aas , The Institute of Health and Society, UiO

International:

- Professor Julia Johansen, Herlev University Hospital, Denmark
- Professor Eric Vibert; Hopital Paul Brousse Paris
- Professor Umberto Cillo, University of Padova, Italy
- Professor Roberto Hernandez Alejandro, URMC, Rochester NY, USA
- Associate professor Gonzalo Sapisochin, UHN Toronto General Hospital, Toronto, Canada

Aktivitet i 2019 / Activity in 2019:

We started in 2006 a pilot study (SECA-I) on liver transplantation (LT) in patients with colorectal cancer (CRC) with liver only metastases that had liver metastases that could not be resected. CRC patients were palliative chemotherapy is the only treatment option have median overall survival (OS) of about 2 years from time of starting first line chemotherapy. In the SECA-I study final 5–year OS was 44% and four patients are alive more than 10 years after LT and two other more than 5 years after resection of a pulmonary small metastatic lesion. All 23 patients included in the SECA-I study had a relapse of the malignant disease after LT, however they survived for long period of time after the relapse with median OS after relapse of 55 months. A patient has survived for more than 13 years after time of relapse.

The reason for the long OS from time of relapse is that the majority of relapses were small pulmonary metastases that increase at a slow rate. Many of the patients developing pulmonary metastases after the LT received surgical resection of the pulmonary metastases. Patients with multiple site of relapse should be considered for palliative chemotherapy. In general patients tolerate chemotherapy after LT, however one should pay increased attention to symptoms as diarrhea, mucositis and skin reactions when starting palliative chemotherapy.

OS after LT was related to clinical factors as: size of largest liver lesion, plasma tumor marker CEA levels, response to chemotherapy at time of LT and time from resection of the primary colorectal cancer and LT (Oslo Score). Furthermore, we have also shown that PET activity in liver metastases could predict OS after LT. By stricter selection criteria (SECA-II study), excluding patients with progressive disease at time of LT and at least one year from time of diagnosis, we have now reported estimated 5-years OS after LT of 83%. In contrast to SECA-I study where all 23 included patients had a relapse after LT, some patients in the SECA-II study have been observed for more than 6 years without a relapse. Also in the SECA-II study the most frequent site of relapse was pulmonary lesions that increased at a slow rate and many of the patients received surgical resection of the pulmonary metastases.

In a recent publication we have shown that Kaplan-Meier calculated 5-years OS of about 70-100 % may be obtained by using different selection criteria as Oslo Score 0-2, Fong Clinical Risk Score 0-2 or PET-MTV (metabolic tumor volume)<70cm^3.

We have published that the patients having general symptoms related to the malignant disease as appetite loss at time of LT had significant decreased OS at 3 years after LT compared to patients without appetite loss. Similar findings were also observed for patients having fatigue.

To expand the liver donor pool available for LT in CRC patients we have also used donor livers that are not routinely used in LT, in general these organs works well and may represent an underutilized source of donor organs that may be used to expand donor organs for LT in CRC patients.

Furthermore, we have shown that the site of the primary tumor is of importance for OS after LT. Patients with primary tumor located in ascending colon have dismal prognosis after LT and should not be offered this treatment.

There is increasing international interest in our results on LT in CRC patients. During the last year we have been invited as speakers at multiple international meetings in USA, Canada, Europa and Asia.

Forskningsgruppe: Klinisk transplantasjonskirurgi og eksperimentell immunologi

Research group: Clinical transplantation surgery and experimental immunology

Avdeling: Avdeling for tranpslantasjonsmedisin

Gruppeleder: Einar Martin Aandahl, lege dr. med.

Om gruppen:
Forskningsgruppen fokuserer på mekanismer som regulerer immunaktivitetet både hos friske mennesker og hos pasienter med immunrelaterte sykdommer eller tilstander. Dette kan være sykdommer som rammer immunapparatet direkte eller avstøtningsreaksjoner etter organtransplantasjon, kroniske infeksjoner eller cancer. Forskningsgruppen arbeider også med kliniske problemstillinger relatert til nyre, lever og pancreas transplantasjon. Vi har prosjekter rettet mot kirurgiske teknikker, komplikajoner, graft- og pasienteroverlevelse og preservasjon av donororganer.

About the group:
The research group is focused on mechanisms that regulate the immune activity in healthy individuals and in patients suffering for immune related diseases and conditions such as rejection after organ transplantastion, autoimmunity, immunodeficiency, chronic infections and cancer. The research group is also working on clinical issues related to kidney, liver and pancreas transplantation. Surgical technique, surgical complications, patient- and graft survival, graft function and preservation and donor criteria are important areas of the research projects.

Hovedmedlemmer / Main members:

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Aktivitet i 2019 / Activity in 2019:

In 2019 we have continued our research projects within the fields of intracellular signal transduction events in subsets of T cells in healthy individuals and patients transplanted with kidneys, pancreas and liver. Two postdocs have been working of these projects they have been pursued in close collaboration with Section for organ transplantation at Rikshospitalet and collaborators in other departments. Two clinical PhD-students have successfully defended their theses. One project was focused on liver transplantation using donors older than 75 years, ABO-incompatible liver transplantation and liver transplantation after iatrogenic liver injuries. The other PhD-projects was focused on the benefits and pitfalls using a new surgical technique in pancreas transplantation. We have also continued our international collaborations where on study investigating the effects of donor-specific antibodies in liver transplantation is of particular interest. This study is an initiative by the transplant center in Copenhagen and is run through the Scandiatransplant partnership. New projects have also been established related to organ preservation using ex vivo perfusion and postoperative complications.

Forskningsgruppe: Klinisk forskningsgruppe for primær skleroserende kolangitt

Research group: Clinical PSC Research Group

Avdeling: Avdeling for transplantasjonsmedisin

Gruppeleder: Trine Folseraas

Om gruppen:

Primær skleroserende cholangitt (PSC) representerer en viktig sykdomsentitet ved seksjon for gastromedisin, avdeling for transplantasjonsmedisin, OUS, Rikshospitalet. Pasienter med PSC henvises fra hele landet for utredning og behandling ved Rikshospitalet, herunder er PSC er en av de vanligste indikasjonene for levertransplantasjon i Norge. Gallegangskreft (cholangiocarcinom) er en fryktet komplikasjon til PSC som rammer opptil 20% av pasientene, dessverre er det en utfordring å diagnostisere denne kreftformen tidlig nok til at kurativ behandling kan tilbys. Vår forskning fokuserer på å forbedre utredning, oppfølging og behandling av PSC pasienter, inkludert bedret diagnostikk og behandling av PSC-assosiert gallegangskreft.

About the group:

Primary sclerosing cholangitis (PSC) constitutes an important part of the patients seen at Department of Gastroenterology, Oslo University Hospital, Rikshospitalet. The Clinical PSC Research Group focus their effort on improving diagnosis, treatment and follow-up of PSC patients. We collaborate closely with the Clinical Liver Research Group at Haraldsplass Deaconess Hospital in Bergen, led by Mette Vesterhus, the Epigenetics Group at the Department of Cancer Prevention, Institute for Cancer Research at the Norwegian Radium Hospital, led by Guro E. Lind, the European Network for the Study of Cholangiocarcinoma (ENSCCA) and the International PSC Study Group (IPSCSG).
Main research objectives comprise:

1) Identification of genomic- and molecular alterations in PSC-associated cholangiocarcinoma that could be used to early diagnosis of malignancy and provide improved, personalized treatment to these patients.
2) Identification of biomarkers of PSC disease progression and PSC-associated cholangiocarcinoma development.
3) Establishment of a regional research and reference network in autoimmune liver diseases including prospective, annual follow-up of PSC patients according to a standardized protocol and collection of biological material for biobank storage.
4) Continued systematic, longitudinal biobanking and registration of clinical data on PSC patients utilizing the infrastructure of the NoPSC biobank.

Hovedmedlemmer / Main members:

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Vemund Paulsen	Senior consultant	OUS	vempau@ous-hf.no
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Assosierte medlemmer / Associated members:

NAME	POSITION/TITEL/ROLE	EMPLOYER/ AFFILIATION	E-MAIL
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Aktivitet i 2019 / Activity in 2019:

Early detection- and personalized treatment of PSC-associated biliary tract cancer

In collaboration with the Epigenetics group at the Department of Cancer Prevention, Institute for Cancer Research at the Norwegian Radium Hospital, led by professor Guro E. Lind, we have previously identified a promising diagnostic modality for cholangiocarcinoma (CCA) consisting of a panel of four DNA methylation biomarkers tested in biliary brush material (Andresen K et al, Hepatology 2015). These methylation biomarkers have been analyzed using bile samples collected from more than 300 Norwegian, Swedish and Finnish patients, including PSC patients with and without CCA. Findings strongly suggest that analyzing aberrant DNA methylation utilizing bile as liquid biopsy material may improve and complement current detection methods for CCA (manuscript in preparation).

In collaboration with IPSCSG and the Department of Pathology at the University Hospital of Heidelberg, we have established an unprecedented large international collective of 186 tissue samples from PSC-patients with CCA from 11 centers in eight countries (Europe and the US). In addition to extensive histomorphological and immunohistochemical characterization, we performed tumor DNA sequencing at 42 known cancer-related genetic loci to detect mutations, translocations and copy number variations. This analysis allowed us to detect many putative therapeutic targets in PSC-CCA. Furthermore, we demonstrated that CCA in PSC shows a distinct and homogeneous molecular and morphological phenotype, reminiscent of extrahepatic CCA. The large number of potentially druggable mutations provides strong incentives for early phase clinical trials of molecular target drugs and personalized cancer treatment in PSC-associated BTC (manuscript accepted). Future projects further utilizing this valuable tissue collection are underway.

Regional research and reference network in autoimmune liver diseases (AILD)

In 2015 we invited colleagues at other hospitals in our region (Helse Sør-Øst) to participate in a regional network for autoimmune liver diseases (AILD) with the aim to follow patients prospectively at regular intervals and in a standardized protocol including clinical data, biochemical parameters and radiological imaging in addition to serum biobanking. Throughout 2018 and 2019, we have established an eCRF for data collection using a web-based platform provided by VieDoc, launching the eCRF for use in the first quarter of 2019. Associate professor Mette Vesterhus, University of Bergen and Haraldsplass Deaconess Hospital, has coordinated the work together with other members of the Clinical PSC Research Group.

The International PSC Study Group (IPSCSG) Database

The collaboration within the IPSCSG has made it possible to define disease characteristics and factors influencing the disease course across a large number of PSC patients. By the end of 2019 clinical data from more than 8467 PSC patients from 43 institutions across 22 countries and 5 continents have been collected and analysed, including more than 400 Norwegian PSC patients (manuscript in preparation).

Forskningsgruppe: Transplantasjonsmedisinsk forskningsgruppe

Research group: Research Group of Transplantation Medicine

Avdeling: Avdeling for transplantasjonsmedisin

Gruppeleder: Professor, overlege Trond Geir Jenssen

Om gruppen:
Gruppen utfører epidemiologiske og kliniske studier med endepunktsdata på pasienter som gjennomgår nyretransplantasjon, pankreastransplantasjon og øycelletransplantasjon. Data som publiseres er dels registerbasert (via et komplett nasjonalt endepunktsregister som oppdateres årlig (Norsk nyreregister)samt en lokal biobank), dels randomiserte kliniske studier som initieres av gruppen selv, og deltakelse i internasjonale multisenter-studier. Studiene fokuserer spesielt på immunterapi, farmakokinetikk, farmakokinetisk modellering og metabolisme, med fokus på post-transplantasjons diabetes (PTDM).

About the group:
The research group carries out epidemiological and clinical outcome studies in kidney transplantation, pancreas transplantation and islet transplantation. Data from the Norwegian Renal Registry (which is updated yearly) together with data from a local biobank are generated, together with RCTs and observational studies. The studies focus on immunotherapy, pharmacokinetics, pharmacotherapeutic modelling and metabolism, in particular metabolism in post-transplant diabetes (PTDM).

Hovedmedlemmer / Main members:

NAME	POSITION/TITLE/ROLE	EMPLOYER/AFFILIATION	E-MAIL
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Ida Robertsen	Associate Professor	UiO	Ida.robertsen@medisin.uio.no

Aktivitet i 2019 / Activity in 2019:

Two of our candidates defended their thesis in 2019 (Erlend Johannessen Egeland and Marit Elizabeth von Düring). A new PhD candidate started Sep 1 on a project financed by Helse SørØst (Rasmus Kirkeskov Carlsen, Aarhus University Hospital)

New projects started in 2019:

1. Hypomagnesemia as a risk factor for development of posttransplant diabetes mellitus (PhD project Rasmus Kirkeskov Carlsen).
2. The microbiome and gut metabolism of mycophenolate acid.

Ongoing projects were continued in 2019:

- Post-transplant diabetes
- Kidney rejection and immunity
- Osteoporosis after transplantation
- Visceral fat and inflammation
- Individualization of immunosuppression, also with home based blood sampling (MitraTip®)
- Biomarkers of outcomes after transplantation
- Adherence of immunosuppressive treatment
- Pregnancy and transplantation
- Measured GFR by iohexol plasma clearance
- Estimated glomerular filtration rate
- Evaluation and follow-up of kidney donors

In relation to these topics altogether 63 peer-reviewed papers were published in international journals in 2019.

Our biobank was expanded, and we have established valid measures for long-term outcome after transplantation (e.g., GFR, pharmacological and metabolic measures, inflammation parameters, etc.). An investigator-initiated RCT on use of empagliflozin in PTDM patients was published in 2019. We have joined an international network for refinement of GFR measurements with iv iohexol. Four representative papers published by our group in 2019 are cited below:

1. Halden TAS, Kvitne KE, Midtvedt K, Rajakumar L, Robertsen I, Brox J, Bollerslev J, Hartmann A, Åsberg A, Jensen T. Efficacy and Safety of Empagliflozin in Renal Transplant Recipients with Post-Transplant Diabetes Mellitus. Diabetes Care 2019; 42(6): 1067-1074.
2. Gustavsen MT, Midtvedt K, Lønning K, Jacobsen T, Reisæter AV, De Geest S, Andersen MH, Hartmann A, Åsberg A. Evaluation of tools for annual capture of adherence to immunosuppressive medications after renal transplantation. Transplant Int 2019; 32(6): 614-625.
3. Pihlstrøm HK, Mjøen G, Mucha S, Franke A, Jardine A, Fellström B, Dahle DO, Holdaas H, Melum E. Genetic markers associated with long-term cardiovascular outcome in kidney transplant recipients. Am J Transplant. 2019; 19(5): 1444-1451.
4. Haugen AJ, Langberg NE, Dahle DO, Pihlstrøm H, Birkeland KI, Reisaeter A, Midtvedt K, Hartmann A, Holdaas H, Mjøen G. Long-term risk for kidney donors with hypertension at donation - a retrospective cohort study. Transpl Int. 2019; 32(9): 960-964.

Forskningsgruppe: Eksperimentell Celletransplantasjon

Research group: Experimental Cell Transplantation

Avdeling: Avdeling for transplantasjonsmedisin (ATX)

Gruppeleder: Hanne Scholz

About the group:

Type 1 diabetes (T1D) is an autoimmune disease caused by destruction of the alpha- and beta cells in the pancreas. Prevention of T1D is hampered by the fact that the actual mechanism of cell destruction is largely unknown. Standard of care in T1D is life-long therapy with exogenous insulin. In spite of optimal insulin therapy (including digital insulin pump devices and subcutaneous glucose sensors), periods of hyper- and hypoglycemia induce serious vascular- and neurological complications, such as accelerated arteriosclerosis, kidney failure and impaired vision.

Clinical islet transplantation is an alternative therapy for those T1D patients whose disease cannot be effectively managed with current methods of exogenous insulin administration. In terms of improving glycaemic control and reducing life-threatening episodes of hypoglycaemia, islet transplantation is highly successful, but the long-term efficacy is still too low and further refinement of the treatment is highly needed.

Our research focused on the development of beta cell replacement therapy for type 1 diabetes and to understand the human islet cell biology. The laboratory aims to improve the care for diabetic patients and has a clear and strong focus of clinical translation based on experimental research. Scholz is head of the Cell Therapy Laboratory for islet isolation and stromal stem cell preparation that holds international standards. The group work in close collaboration with the Nordic Network for Clinical Islet transplantation and Uppsala group (led by Prof. Olle Korsgren). The research group is integrated in the Centre of Excellence -Hybrid Technology Hub at Institute of Basic Medical Sciences, UiO for developing organoids and the organ on a chip technology.

The research group has a clear translational approach with projects ranging from clinical trials and outcome studies, experimental islets biology and cell transplant studies in small animal models, and advanced in vitro studies.
The lab is funded by the Research Council of Norway, UiO:Life Science, South-Eastern Norway Regional Health Authority, University of Oslo, The Norwegian Diabetes Association, Oslo Diabetes Research Center.

Hovedmedlemmer / Main members:

NAME	POSITION/TITLE/ROLE	EMPLOYER/AFFILIATION	E-MAIL
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Nils Tore Vethe	Forsker, Seksjonsleder	OUS	nvethe@ous-hf.no

Activity in 2019:

Projects:

- To create functional mini-pancreas for "organ on a chip" platform, together with the Centre of Excellence -Hybrid Technology Hub at Institute of Basic Medical Sciences, UiO
- Development of beta cell replacement therapy for type 1 diabetes
    - Improvements of pancreatic islet isolation procedure and outcome
- Using iPS technology to in vitro differentiate human stem cells into mature functional cells
    - We investigate human iPS-derived insulin-producing beta cells in collaboration with prof. Helge Ræder´s research group at University of Bergen (UiO:Life Science Convergence Environment project ABINO)
- Regenerative/repair of the endocrine compartment of the pancreas using adult stem cells
    - Ductal Cell Reprogramming to Insulin-Producing Beta-Like Cells
- Cellular intervention to improve beta cell replacement therapy
    - Mesenchymal Stem Cells (MSCs)- a new and important modulator in clinical islet transplantation for type 1 diabetes
- Establishing a therapeutic biobank of adult stem cell sources for clinical translational trials
    - Development of the decidua stromal cells (DSC) ATMP product for the clinical trial: "Safety Trial, DSC vs. BAT in SR acute GvHD"
- Development of 3D Bioprinting of biomimetic pancreas to treat diabetes
    - 3D Bioprinting of biomimetic pancreas with the biocompatible bioink TUNINK

Publication 2019:

1: Legøy TA, Ghila L, Vethe H, Abadpour S, Mathisen AF, Paulo JA, Scholz H, Raeder H, Chera S. In vivo hyperglycemia exposure elicits distinct period-dependent effects on human pancreatic progenitor differentiation, conveyed by oxidative stress. Acta Physiol (Oxf). 2019 Dec 23:e13433. doi:10.1111/apha.13433. [Epub ahead of print] PubMed PMID: 31872528.

2: Bergström M, Müller M, Karlsson M, Scholz H, Vethe NT, Korsgren O. Comparing the Effects of the mTOR Inhibitors Azithromycin and Rapamycin on In Vitro Expanded Regulatory T Cells. Cell Transplant. 2019 Dec;28(12):1603-1613. doi:10.1177/0963689719872488. Epub 2019 Sep 12. PubMed PMID: 31512504; PubMed Central PMCID: PMC6923545.

3: Nano R, Kerr-Conte JA, Scholz H, Engelse M, Karlsson M, Saudek F, Bosco D, Antonioli B, Bertuzzi F, Johnson PRV, Ludwing B, Ling Z, De Paep DL, Keymeulen B,Pattou F, Berney T, Korsgren O, de Koning E, Piemonti L. Heterogeneity of Human Pancreatic Islet Isolation Around Europe: Results of a Survey Study. Transplantation. 2020 Jan;104(1):190-196. doi: 10.1097/TP.0000000000002777. PubMed PMID: 31365472.

4: Vethe H, Ghila L, Berle M, Hoareau L, Haaland ØA, Scholz H, Paulo JA, Chera S, Ræder H. The Effect of Wnt Pathway Modulators on Human iPSC-Derived Pancreatic Beta Cell Maturation. Front Endocrinol (Lausanne). 2019 May 8;10:293. doi:10.3389/fendo.2019.00293. eCollection 2019. PubMed PMID: 31139151; PubMed Central PMCID: PMC6518024.

Book chapter 2019:

BENGT VON ZUR-MÜHLEN, HANNE SCHOLZ, JARL HELLMAN, OLLE KORSGREN, TORBJÖRN LUNDGREN. Chapter 48: Treating diabetes with islet transplantation:Lessons learnt from the Nordic network for clinical islet transplantation. In: Orlando G, Piemonti L, Ricordi C, Stratta RJ, and Gruessner RWG, (eds). Transplantation, Bioengineering, and Regeneration of the Endocrine Pancreas, Volume 1. San Diego: Elsevier Inc./Academic Press, 2020: 600-610.

OLLE KORSGREN, HANNE SCHOLZ. Chapter 61: Cellular therapies in preclinical and clinical islet transplantation: Mesenchymal stem cells. In: Orlando G, Piemonti L, Ricordi C, Stratta RJ, and Gruessner RWG, (eds). Transplantation, Bioengineering, and Regeneration of the Endocrine Pancreas, Volume 1. San Diego: Elsevier Inc./Academic Press, 2020: 821-826.

Other activity 2019:

Invited speakers and presentation at conferences 2019

- 9th EPITA Symposium & 38th AIDPIT Workshop, European Society of Organ Transplantation, Innsbruck, Austria, January 2019.
  Faculty and invited speaker: Hanne Scholz
  Poster: Shadab Abadpour
- 3rd Nordic Organ on a Chip Symposium, Tampere, Finland, August 2019,
  Oral: Shadab Abadpour
- Oslo Life Science Conference, "Nordic Organ on a Chip Symposium", February 2019
  Oral: Hanne Scholz

  Poster: Shadab Abadpour, Essi Niemi

- 17th International Pancreas and Islet Transplant Association (IPITA) – Lyon, France, July 2019
  Invited speaker: Hanne Scholz
  Oral pitch: Shadab Abadpour
  * Shadab Abadpour recieved Derek Gray Distinguished Traveling Scholarship Award from the International Islet and Pancreas Transplantation Association (IPITA) in Lyon, July 2019

Contribution with lectures on the following courses during 2019:

- MF9120BTS - Molecular Medicine (national PhD-level course), NCMM Molecular Medicine, UiO/OUS. Autumn 2019. Lecture from HTH: Hanne Scholz
- MED3060 course– Medical and Surgical Research, 5-6th semester, Faculty of Medicine, UiO, Spring 2019. Lecturer from HTH: Hanne Scholz

Master degree 2019: Celine Krefting. Master thesis in Biomedical Engineering: “Design and 3Dbioprinting of biomimetic pancreas for treatment of type 1 diabetes”. Main supervisor: Hanne Scholz, Oslo, Norway and Paul Gatenholm, Gothenburg, Sweden

PhD 2019: Simen W. Schive. “Islet allotransplantation in Norway and the potential of adipose tissue derived stromal cells to improve islet survival”. Main supervisor: Hanne Scholz

Forskningsgruppe: Klinisk Effektforskning

Research group: Clinical Effectiveness Research Group

Avdeling: Klinisk Forskningsseksjon, Avdeling for transplantasjons medisin, KIT

Gruppeleder: Mette Kalager

Om gruppen:
Forskergruppen gjennomfører store randomiserte og epidemiologiske studier for å vurdere effekter av ulike diagnostiske og terapeutiske intervensjoner.
Målet med forskningen er å finne ut om kliniske intervensjoner og behandlinger virker, hvilken som virker best, og hvilke bivirkninger og komplikasjoner de har. Gruppen har inkludert mer enn 300.0000 deltagere i pågående studier. Gruppen samarbeider med de fleste sykehusene i Norge og mange ledende forskingsinstitusjoner i utlandet. Gruppen ble startet i 2012 av Michael Bretthauer og Mette Kalager og består av en gruppe unge og dynamiske forskere.

About the group:
The Research Group conducts large randomized trials and epidemiologic studies to test end compare diagnostic and therapeutic clinical interventions.
The main goal of the research is to find whether clinical interventions and treatments work, what works best and what side effects and complications they lead to. Currently more than 300.000 participants are enrolled in ongoing studies. The group collaborates with most hospitals in Norway and with several leading research institutions worldwide.
The group was established in 2012 by Michael Bretthauer and Mette Kalager and consists of a young and dynamic team of researchers.

Hovedmedlemmer / Main members:

NAME	POSITION/TITLE/ROLE	EMPLOYER/ AFFILIATION	E-MAIL
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Assosierte medlemmer / Associated members:

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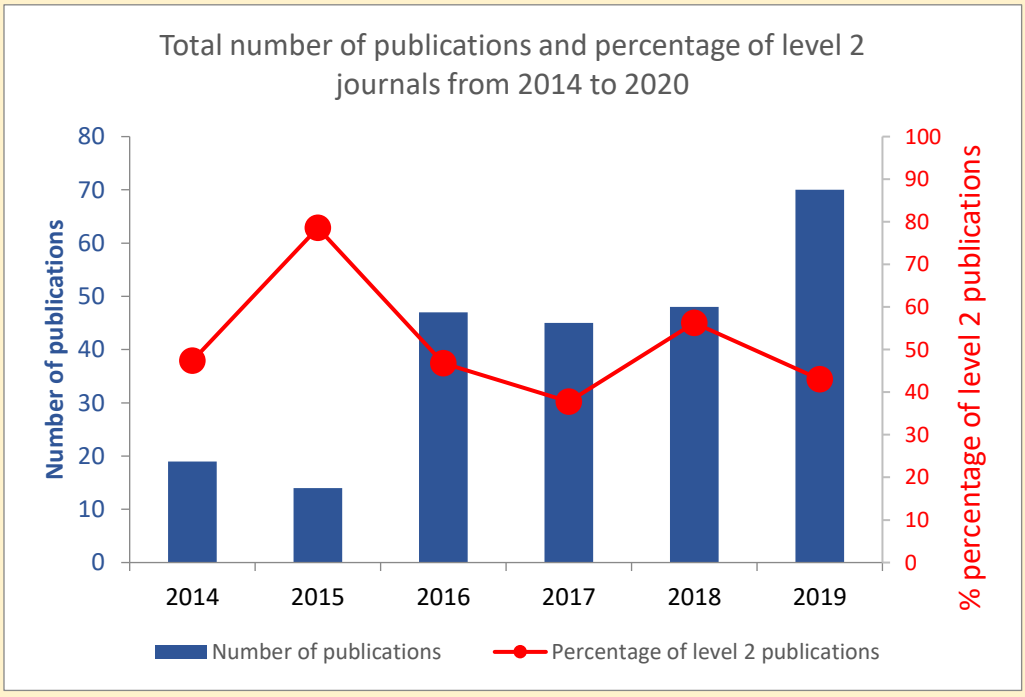
Aktivitet i 2019 / Activity in 2019:

The group has had an expansive growth from its 4 initial members (1 professor, 1 postdoc and 2 PhD candidates) to 24 members in 2019 (including 2 professors, 1 professor emeritus, 3 associate professors, 3 postdocs, 8 PhD candidates, 1 medical research track student, 3 research nurses, and 3 administrative staff). All but 4 members of the group (including the medical student), are funded by external grants.

Summary of Publications, Funding and Activities in 2019

- In 2019, the Group published 69 articles in peer-reviewed journals.
- Of all articles, 43 % were published in level 2 journals (the top 20 % of journals in each field).
- The mean impact factor for the articles published by the Group in 2019 is 9. The cumulative impact factor is 492.
- The group received external funding in 2019 worth more than 28 million NOK.
- The group's researchers received two Fulbright grants and other awards

Publications from 2014 to 2020



Awards

- Mette Kalager received the "Young Researcher of the Year" award from Oslo University Hospital.
- Øyvind Holme received the Kjell Arne Grøttum research prize of Sørlandet Hospital.
- Ishita Barua was awarded the Fulbright Scholarship and received a travel scholarship from Olympus for the completion of the "EndoBRAIN.International-study.
- Erle Refsum was awarded the Fulbright Scholarship.
- Magnus Løberg received the "Reviewer of the year" award from the Norwegian Medical Journal.

Funding

- The group received 19 400 000 NOK in funding from KLINBEFORSK for REFIT, Faecal Transplantation for Irritable Bowel Syndrome – First Phase III Clinical Trial.
- The group received 8 000 000 NOK as partner and co-principal investigators in the REFIT 2 trial from the national clinical trial funding mechanism (KLINBEFORSK).
- Øyvind Holme received a PhD grant from the Health Board of South-East Norway for the study "Adverse events after colonoscopy in colorectal cancer screening".
- Christer J. Tønnesen and the group were admitted to the SPARK Innovation Program and received innovation funding with the project SonoStitch.
- Sara Gunnestad Ribe received an annual research grant from the Health Board of South-East Norway

Forskningsgruppe: Forskningsgruppe for livskvalitet og helseøkonomi

Research group: Quality of life and Health Economics

Avdeling: Avd. for transplantasjon

Gruppeleder: Marit Helen Andersen

Om gruppen:

Forskningsgruppe for livskvalitet og helseøkonomi er en veletablert forskningsgruppe ved Avdeling for transplantasjon, Klinikk for kirurgi, inflammasjonsmedisin og transplantasjon.

Bruk av mål på helserelatert livskvalitet og andre pasientrapporterte effektmål er blitt et sentralt verktøy i kliniske studier. Helseøkonomiske analyser er viktige i grunnlag for prioritering i helsevesenet. Medlemmene i forskningsgruppen representerer et bredt fagnettverk med en felles metodeforankring.

Temaet for forskningsgruppa er således relevant innenfor de fleste kliniske studier, og sammensetningen er bredt tverrfaglig med mange assosierte medlemmer fra andre typisk organ- og sykdomsbaserte forskningsgrupper i Oslo Universitetssykehus.

Forskningsgruppe for livskvalitet og helseøkonomi har som mål å fungere som et bredt og støttende forskningsnettverk for å bidra til kvalitetssikring og forbedringer innen forskningsfeltene livskvalitet og helseøkonomi. Mot dette målet jobber vi på flere områder av betydning for god klinisk forskning:

- Studieprotokoller av høy kvalitet for å sikre best mulig data
- Adekvate metoder ved bruk av pasientrapporterte effektmål
- Vurdering og valg av egnede og validerte spørreskjema/instrumenter.
- Etablering av en infrastruktur for praktisk teknisk bistand i form av scanning-tjeneste, dedikert studiepersonell for innhenting av data, etablering og tilgang til regionale (evt nasjonale) databaser for validerte instrumenter og data.
- Felles søknader om konsesjon for bruk av spørreskjemaer/instrumenter i norske studier
- Utforming av forskerkurs innen livskvalitet og helseøkonomi for PhD-kandidater
- Formidling av statistikerbistand

About the group:

A multidisciplinary research group for quality of life was established at Oslo University Hospital (OUH) in 2012 aiming to be a research network and communicate methodological issues within quality of life research. In recent years, the research group has been extended to also include research within health economic. Today Research group for quality of life and health economics is outgoing from Department of Transplantation at OUH. The group has varied research activities related to a wide span of research questions within different patient groups.

Measurements of quality of life and health economics allow for mapping of the impact of disease and for comparing perceived efficacy and impact of treatment. The Norwegian health authorities state that systematic collection of quality of life-data is important for improvement, research and innovation within health care. Furthermore, health economic evaluations have been recommended as important outcomes for effectiveness in the health sector. Additionally, such studies complement traditional endpoints to evaluate the significance of a treatment effect, also as seen from the patient's perspective. Thus, research within these fields can facilitate patients' involvement in treatment decision making. In line with international standards, the focus of the group has been extended to include both a wide range of research methodology and measurement outcomes. Today about 40 researchers are joining the group with a broad range of both national and international collaborators.

Hovedmedlemmer / Main members:

NAME	POSITION/TITLE/ROLE	EMPLOYER/AFFILIATION	E-MAIL
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Assosierte medlemmer / Associated members:

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Aktivitet i 2019 / Activity in 2019:

Activity in 2019 (selected):

- Planning for CAS-stay at Vitenskapsakademiet, Oslo, in 2020 (Astrid Klopstad Wahl and Marit Andersen)
- 2 PROM-research conferences:
    1. 28. January organized by Research group for Quality of Life and Health Economy + PROMINET (82 participants)
    2. 27. November organized by KIT and OsloMet (42 participants)
- 4 regular meetings for main group members prepared with agenda
- 23 publications in peer reviewed international journals (main group members)
- Oral - and poster presentations at international conferences (transplant conferences, health literacy conferences, quality of life conferences)
- Active collaboration with network partners (PROMINET, LIVSFORSK, OsloMet, UiO): planning and performing research projects, funding, courses/teaching, recruiting master and PhD-candidates, supervision of candidates, external scientific committee work etc) professor Richard Osborne, Australia, about health literacy projects
- 2 applications to Helse Sør Øst, 1 application to DAM
- 1 doctoral dissertation (1 main group member).

Ongoing research projects (selected):

- Transition for Hirschsprung patients.
- Testing the effect of a new health communication intervention for renal transplant recipients. A randomized controlled study.
- Developing and testing a health literacy intervention for renal recipients
- Health literacy in the context of renal recipients
- Effects on length of stay and costs with same-day retransfer to the referring hospitals for patients with acute coronary syndrome after angiography and/or percutaneous coronary intervention

Forskningsgruppe: Nevroendokrine svulster

Research group: Neuroendocrine tumors

Avdeling: Department for organ transplantation

Gruppeleder: Espen Thiis-Evensen

Om gruppen:
Består av personer med interesse for nevroendokrine neoplasmer, hovedsakelig fra avdelinger som involvert i utredning, diagnostikk og behandling av nevroendokrine neoplasmer ved Oslo universitetssykehus

About the group:
Består av personer med interesse for nevroendokrine neoplasmer, hovedsakelig fra avdelinger som involvert i utredning, diagnostikk og behandling av nevroendokrine neoplasmer ved Oslo universitetssykehus

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Gunter Kemmerich	Overlege	OUS	
Geir Olav Hjortland	Overlege	OUS	
Brit Dybdahl	Overlege	OUS	
Sven-Petter Haugvik	LIS	Vestre viken	

Aktivitet i 2019 / Activity in 2019:
Ongoing/finished in 2019 projects:
1. Onest-study. Nordic study evaluating chromogranin A as a tumormarker. 47 patients included. Study ended, results published.

2. Explain-study. Nordic study evaluating multiple tumor markers . Included 26 patients. Manuscript in preparation

3. Effect of PRRT treatment evaluating. Comparison of different radiological treatment effect evaluation systems in evaluating the effect of peptide receptor radionuclide therapy. Result will be published in 2019. 79 patients included.

4. Evaluation of the treatment effect of the chemotherapy combination Stz/5FU. Study ended, result being processed. 72 patients included.

5. Evaluation of the treatment effect of molecular targeted therapy with the m-TOR inhibitor everolimus. Study ended, result being processed. 98 patients included.

6. Quality of life in patients with small intestinal tumors. National study. Manuscript submitted. 50 patients included

7. The feasibility and outcome of D3-resection in patients with small intestinal tumors. Cooperation with Akershus University Hospital. Ongoing inclusion, so far 9 patients included.

8. Evaluation of the treatment effect of the chemotherapy combination temozolomisde/capecitabine. Study in preparation.

9. *Prevalence and incidence of neuroendocrine neoplasms in Norway*. Data collected, data analyses in preparation

Other
Establishment of a new patient registry based on the Medinsight database.

Publikasjoner/ Publications

1. Løitegård T, Berntzen DT, Thiis-Evensen E. The RECIST criteria compared to conventional response evaluation after peptide receptor radionuclide therapy in patients with neuroendocrine neoplasms. Ann Nucl Med. 2019 Mar;33(3):147-152. doi: 10.1007/s12149-018-1316-2. Epub 2018 Nov 7. PubMed PMID: 30406360.

2. Fazio N, Martini JF, Croitoru AE, Schenker M, Li S, Rosbrook B, Fernandez K, Tomasek J, Thiis-Evensen E, Kulke M, Raymond E. Pharmacogenomic analyses of sunitinib in patients with pancreatic neuroendocrine tumors. Future Oncol. 2019 Jun;15(17):1997-2007. doi: 10.2217/fon-2018-0934. Epub 2019 May 14.

3. Vyakaranam AR, Crona J, Norlén O, Granberg D, Garske-Román U, Sandström M, Fröss-Baron K, Thiis-Evensen E, Hellman P, Sundin A. Favorable Outcome in Patients with Pheochromocytoma and Paraganglioma Treated with (177)Lu-DOTATATE. Cancers (Basel). 2019 Jun 28;11(7). pii: E909. doi: 10.3390/cancers11070909. PubMed PMID: 31261748; PubMed Central PMCID: PMC6678507.

4. Dam G, Grønbæk H, Sorbye H, Thiis-Evensen E, Paulsson B, Sundin A, Jensen C, Ebbesen D, Knigge U, Tiensuu Janson E. Prospective study of chromogranin A as a predictor of progression in patients with pancreatic, small intestinal and unknown primary neuroendocrine tumors. Neuroendocrinology. 2019 Oct 2. doi: 10.1159/000503833. [Epub ahead of print] PubMed PMID: 31578011.

Department of Urology
(URO)

- Infeksjon og inflammasjon i urologi/ Infections and inflammation in urology

- Prostatakreft/ Prostate Cancer

Forskningsgruppe: Infeksjon og inflammasjon i urologi

Research group: Infections and inflammation in urology

Avdeling: Urologisk avdeling

Gruppeleder: Truls E. Bjerklund Johansen

Om gruppen:

Langsiktige mål

Registrere forekomsten av urinveisinfeksjoner, typer av mikroorganismer, antibiotikaresistens og risikofaktorer.

Bedre bruken av antibiotica og ikke-antibiotiske preparater (antibiotic stewardship) både i forebygging og behandling.

Å kunne forutsi utviklingen av antibiotikaresistens i et internasjonalt perspektiv.

Redusere sykeligheten forbundet med infeksjoner i urinveiene.

About the group:

Aims

Register the prevalence of urinary tract infections, types of microorganisms, antibiotic resistance and risk factors in order to improve the use of antibiotics and non-antibiotic anti-infectives (antibiotic stewardship).

Contribute to prevention and treatment of urinary tract infection and predict the development of antibiotic resistance in an international perspective, thereby reducing the morbidity associated with urinary tract infections.

Research topics:

Asymptomatic bacteriuria; Antimicrobial resistance, mathematical modelling of development of resistance; Antibiotic stewardship; Infection prophylaxis; Infectious complications in urology; Classification of urinary tract infections; Microbiome in urine; Phage therapy in prophylaxis and treatment; Tuberculosis in the urinary tract; Urosepsis.

Projects

1. Global Prevalence Study of Infections in Urology (GPIU annual)
2. Global Prevalence Study of Infections after Prostate biopsy (GPIU biopsy)
3. Global Prevalence Study of Infections in community (GPIU com)
4. Longitudinal Study on Urosepsis (Serpens)
5. EU COST project on urinary stents
6. Scientific Network to Tackle Antimicrobial Resistance In Infections (SENTRII)
7. Norwegian study on antibiotic prophylaxis in prostate biopsy

Collaboration

European Section of Infections in Urology/European Association of Urology.

GPIU studies are being performed in more than 100 countries.

SENTRII is supported by researchers in more than 30 countries.

Hovedmedlemmer / Main members:

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Aktivitet i 2019 / Activity in 2019:

Meetings:

Preparation of second International ESIU symposium in Oslo, March 2020. The first symposium was held in Oslo in Dec. 2017.

Theses:

Zafer Tandogdu dr. philos degree: Healthcare Associated Urinary Tract Infections in Urology Departments. Pathogens, Resistance and Appropriate Empiric Antibiotic Choices. From a Global Point Prevalence Registration to Modelling based on a Bayesian Approach (Submitted UIO)

Awards:

Welcome open research competition 2019. ECCMID, April 2019.The *Bayesian* WISCA to optimize antibiotic selection: A novel tool applied in urosepsis. Zafer Tandogdu, Evgenios Kakariadis, Florian Wagenlehner, Kurt Naber, Truls Erik Bjerklund Johansen

Selected publications:

- Living textbook: Urogenital Infections and Inflammations. T.E. Bjerklund Johansen, F. M.E. Wagenlehner, Y.-H. Cho, T. Matsumoto, J. N. Krieger, D. Shoskes, K. Naber https://books.publisso.de/en/publisso_gold/publishing/books/overview/52
  XYLOGLUCAN, HIBISCUS AND PROPOLIS TO REDUCE SYMPTOMS AND ANTIBIOTICS USE IN RECURRENT UTIS: A PROSPECTIVE STUDY.
  Tommaso Cai, Irene Tamanini, Andrea Cocci, Fabrizio Di Maida, Patrizio Caciagli, Serena Migno, Liliana Mereu, Saverio Tateo, Gianni Malossini, Alessandro Palmieri, Paolo Verze, Vincenzo Mirone, Truls E. Bjerklund Johansen, 2019, bind 14, nummer 12, s. 1013-1021. Future Microbiology Link to publication in Scopus. DOI
- CURRENT KNOWLEDGE OF THE POTENTIAL LINKS BETWEEN INFLAMMATION AND PROSTATE CANCER
  Tommaso Cai, Raffaella Santi, Irene Tamanini, Ilaria Camilla Galli, Gianpaolo Perletti, Truls E. Bjerklund Johansen, Gabriella Nesi, 2019, bind 20, nummer 15. International Journal of Molecular Sciences Link to publication in Scopus. DOI.
- APPROPRIATE EMPIRIC ANTIBIOTIC CHOICES IN HEALTH CARE ASSOCIATED URINARY TRACT INFECTIONS IN UROLOGY DEPARTMENTS IN EUROPE FROM 2006 TO 2015: A BAYESIAN ANALYTICAL APPROACH APPLIED IN A SURVEILLANCE STUDY
  Zafer Tandogdu, Evgenios T.A. Kakariadis, Kurt Naber, Florian Wagenlehner, Truls Erik Bjerklund Johansen, 2019, bind 14, nummer 4. PLoS ONE Link to publication in Scopus. DOI.
- INFECTIOUS COMPLICATIONS AFTER LASER VAPORIZATION OF URINARY STONES DURING RETROGRADE INTRARENAL SURGERY ARE NOT ASSOCIATED WITH SPREADING OF BACTERIA INTO IRRIGATION FLUID BUT WITH PREVIOUS USE OF FLUOROQUINOLONES
  Tommaso Cai, Andrea Cocci, Franco Coccarelli, Lorenzo Ruggera, Paolo Lanzafame, Patrizio Caciagli, Gianni Malossini, Alfonso Crisci, Alberto Trinchieri, Giampaolo Perletti, Marco Carini, Gernot Bonkat, Riccardo Bartoletti, Truls E. Bjerklund Johansen, 2019. European Urology Focus Link to publication in Scopus. DOI.
- Metagenomics in diagnosis and improved targeted treatment of UTI. Matthew Dixon, Maria Stefil, Michael McDonald, Truls Erik Bjerklund Johansen, Kurt Naber, Florian Wagenlehner, Vladimir Mouraviev. World Journal of Urology 2019: https://doi.org/10.1007/s00345-019-02731-9.
- Epidemiology of Extrapulmonary Tuberculosis. Ekaterina Kulchavenya, Kurt G. Naber and Truls Erik Bjerklund Johansen.. In Sener A, Erdem H. eds.Extrapulomonary Tuberculosis. Springer Nature Switzerland AG 2019; https://doi.oeg/10.1007/978-3-030-04744-3. Chapter1:1-14.
- Urogenital Tuberculosis. Ekaterina Kulchavenya, Kurt G. Naber and Truls Erik Bjerklund Johansen. In Sener A, Erdem H. eds.Extrapulomonary Tuberculosis.Springer Nature Switzerland AG 2019; https://doi.oeg/10.1007/978-3-030-04744-3. Chapter11:141-154.
- Transurethral Resection of the Prostate: are We Following the Guidelines? Outcomes from the Global Prevalence of Infections in Urology (GPIU) Study. Bela Köves, Peter Tenke, Zafer Tandogdu, Tommaso Cai, Florian Bogenhard, Björn Wullt, Kurt Naber, Riccardo Bartoletti, Mete Cek, Ekaterina Kulchavenya, Tamara Perepanova, Adrian Pilatz, Gernot Bonkat, Truls Erik Bjerklund Johansen & Florian Wagenlehner (contributed equally as senior authors). Journal of Chemotherapy. 2019:31(1);15-22, DOI: 10.1080/1120009X.2018.1542552
- Individual, DNA-guided, antibacterial prophylaxis prior to transrectal prostate biopsy based on results of next generation sequencing (NGS) of rectal swabs can be considered as a promising targeted approach to prevent severe urinary tract infection. Vladimir Mouraviev, M. Dixon, Maria Stefil, C. Skinner, M. Mcdonald, S. Vourganti, D. Albala, F. Wagenlehner, Kurt Naber, Truls E Bjerklund Johansen. E. Crawford. European Urology Supplements 18(1):e54. DOI: 10.1016/S1569-9056(19)30039-9.
- Prostate – Inflammation. Mark J. Salji, Truls E. Bjerklund Johansen, Hing Y. Leung. Chapter 26: 523-30. In Aboumarzouk O. ed.: BLANDY'S UROLOGY 3rd edition. John Wiley & Sons Inc. February 2019. Item Number (DPCI): 248-91-1224 DOI: 10.1002/9781118863343.

Research group: Infections and inflammation in urology

Forskningsgruppe: Prostatakreft

Research group: prostate cancer

Avdeling: Urologisk avdeling

Gruppeleder: Viktor Berge

About the group:
The Research group of prostate cancer consists of urologists and oncologists (main members) and physicians and scientists from other departments and institutes (associated members), engaged in prostate cancer research at Oslo University Hospital (OUH). Main topic of clinical research is new diagnostic methods, outcomes studies and Quality of Life studies after primary treatment and salvage treatment of prostate cancer.

The main aims for our translational research are detection and validation of new putative biomarkers in tumor tissue, blood and urine. This effort focuses on achieving a more personalized treatment of patients, in order to reduce overdiagnosis and overtreatment of prostate cancer, but also to improve diagnosis and treatment of high-risk prostate cancer.

Main members:

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Activities:
During 2019 we had one meeting for the whole group and 10 project meetings.
We had 2 PhD students associated with the group and one PhD student as main member.

New projects:

- Last year our group joined the SPCG-17 study: *Prostate Cancer Active Surveillance Trigger Trial (PCASTT*), which is about finding trigger factors for repeat biopsies and radical treatment for patients in active surveillance.
- The sPLND (salvage Pelvic Lymph Node Dissection) study ended (paper in preparation) and was replaced by the STORM study: *A randomized phase II trial for the Salvage Treatment of OligoRecurrent nodal prostate cancer Metastases* where the main objective is comparing salvage pelvic radiation or not in patients treated with sPLND or stereotactic radiation against suspicious lymph nodes.
- Biopsy study: Antibiotic prophylaxis or not for transperineal prostate MRI-TRUS fusion biopsy.
- Much work was done to get funding for the NeuroSAFE project in collaboration with UCL, London, where the aim is assessing the value of peroperative frozen section analyses of biopsies during RALP. Our efforts was without success, however, we will apply for funding also this year.
- Our group is collaborating with the Department of oncology, Radiumhospitalet, in their effort to establish a biobank and clinical registry similar to our prostate registry and biobank.

Ongoing projects:

- The ongoing FARP study, which is a randomized study comparing radical prostatectomy and focal HIFU treatment for localized prostate cancer, recruited many patients during 2019.
- The Exosome project (*Urinary exosome test for improved prostate cancer management*) is still recruiting patients
- SPCG-15 (*Primary radical prostatectomy versus primary radiotherapy for locally advanced prostate cancer: an open randomized clinical trial)* is still recruiting patients
- Our collaboration with Almac Diagnostics, Belfast, is continuing
- During 2019 there were monthly teleconferences with collaborators in US, Australia and Finland about the Prostate Cancer Biorepository Network (PCBN) located at Johns Hopkins, Baltimore, and sponsored by the Movember foundation. Our group is represented in the board of the PCBN.

Last year, finally Medinsight was established as a platform for our Prostate cancer registry and Biobank. It will also replace KREMT (Kreftregistrets Elektroniske Meldetjeneste) in transferring new cancer data to the Norwegian Cancer Registry. So far, it seems to be of great benefit for our registry and biobank. In 2020, the Prostate cancer registry will also be used in regularly internal meetings among the prostate surgeons for quality improvement.

Main members of our group have authored or coauthored 12 publications about prostate cancer during 2019.

Research Institute for Internal Medicine (IMF)

- Atherosklerose og relaterte metabolske sykdommer / Atherosclerosis and related metabolic disorders
- Immunologiske og molekylære mekanismer i myokard remodellering og hjertesvikt / Immunological and molecular mechanisms in myocardial remodeling and heart failure
- Inflammasjonsmarkører for hjertekar- og metabolske sykdommer / Inflammatory Biomarkers in Cardiovascular and Metabolic Disease
- Eksperimentell leverforskning / Experimental hepatology (NoPSC)
- Inflammasjonssykdommers genomikk og metagenomikk / Genomics and metagenomics in inflammatory diseases (NoPSC)
- Immunopathogenetic mechanisms in immunodeficiency and infectious disorders

Forskningsgruppe: Aterosklerose og relaterte metabolske sykdommer

Research group: Atherosclerosis and related metabolic disorders

Avdeling: Institutt for Indremedisinsk Forskning / Research Institute of Internal Medicine

Gruppeleder: Bente Halvorsen

Om gruppen:

Kardiovaskulær sykdom og relaterte metabolske sykdommer som diabetes, fedme og fettlever er viktige årsaker til sykelighet og død over hele verden. De har mange fellestrekk, som for eksempel dyslipidemi og inflammasjon. Ved å studere disse prosessene ved hjelp av translasjonsforskning, der vi forbinder basal forskning og klinikk, ønsker vi å bygge et fundament for utvikling av ny diagnostikk og behandling for disse sykdommene.

Vår forskningsgruppe arbeider i krysningen mellom molekylærbiologi og biokjemi, og kardiovaskulær, cerebrovaskulær og endokrin medisin. Vårt overordnede mål er å avdekke nye terapeutiske mål og biomarkører.

Gruppen bruker et bredt spekter av metoder, alt fra analyser av blod og vevsprøver fra pasienter, til studier i genetisk modifiserte mus ved hjelp av avansert celle- og molekylærbiologi. Gruppen består av personer med forskjellig bakgrunn og inkluderer leger, ernæringsfysiologer, biokjemikere, molekylærbiologer og ingeniører. Den tverrfaglige kompetanse er en stor styrke i vår forskningsgruppe.

About the group:

Cardiovascular disease and related metabolic disorders such as diabetes, obesity and fatty liver disease are major causes of morbidity and mortality worldwide. They have many common features, such as dyslipidemia and inflammation. By exploring these processes through translational research, connecting basic science and the clinic, we wish to build a foundation for the development of new diagnostic and treatment targets for these conditions.

Our research group works in the cross-section between molecular biology and biochemistry, and cardiovascular, cerebrovascular and endocrine medicine. Our ambitious goal is to delineate novel therapeutic targets and biomarkers.

The group uses different research approaches, ranging from analyses of blood and tissue samples from patients, to studies in genetically modified mice using advanced cellular and molecular biology. The group consists of people with different educational background and includes medical doctors, nutritionists, molecular biologists, biochemists and engineers. Such multidisciplinary competence is a great strength of our research group.

Hovedmedlemmer / Main members:

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Aktivitet i 2019 / Activity in 2019:

Methodology

Through a translational approach, combining human clinical material with in vivo studies in animal models and in vitro work in cell cultures, we aim to unravel mechanisms important for the development of cardiometabolic disease. To accomplish this, we are constantly seeking to expand our repertoire of methodology. During the last year, a focus in our research group has been on establishing an in-house workflow for analysis of complex multiomic data. This include both the infrastructure and the competence to perform advanced bioinformatic analyses. In our research, we perform several different large-scale analysis on both human and murine samples, such as RNA sequencing, mass spectrometry and bisulfite sequencing, and it is a major goal for us to be able to integrate the data generated from these analyses in a useful manner.

The cysteine protease legumain in atherosclerotic disease

We have studied the role of inflammatory mediators in development of atherosclerosis for many years. In 2019, one of our inflammatory focuses has been on the cysteine protease legumain. We have previously shown that legumain is increased in both plasma and plaques of patients with carotid stenosis and that legumain is produced by macrophages, and colocalized to macrophages in the plaque. During the last year, we have further shown that legumain is upregulated in patients with acute cardiovascular disease, associated with improved outcome. Further, legumain was produced from platelets upon activation, and induce anti-inflammatory effects in macrophages, suggesting a possible protective role in cardiovascular disease.

T cells in obesity

Obesity increases the risk of several metabolic conditions, with type 2 diabetes as one of its most devastating consequences. The term “metabolic healthy obese” has emerged the last years, describing those who develop severe obesity without metabolic sequela. Understanding the underlying mechanism for metabolic healthy and unhealthy obesity is of great interest to develop better treatment for this patient group. One of our major research projects is the study of T cell function in metabolic regulation during obesity development. Circulating and tissue resident T cells can modulate macrophage function and adipocyte differentiation, and thereby affect energy storage and utilization, resulting in healthy or dysregulated metabolism. This will further result in metabolic health or disease.

The role of DNA repair enzymes in atherogenesis

The recent years, a main focus of the research group has been on oxidative DNA repair enzymes and their role in atherosclerosis. Data from our group has demonstrated that the glycosylase Neil3 is regulated in human atherosclerosis and that when knocked out, increases the development of atherosclerosis in atherosclerosis-prone mice. We have further recently shown that Neil3 can modulate vascular smooth muscle cell proliferation and transdifferentiation, an important feature of atherogensis. Thus, our findings suggests that Neil3 has an important role in development of atherosclerosis, possibly independent of its role as a DNA repair enzyme.

Forskningsgruppe: Immunologiske og molekylære mekanismer i myokard remodellering og hjertesvikt

Research group: Immunological and molecular mechanisms in myocardial remodeling and heart failure

Avdeling: Institutt for indremedisinsk forskning

Gruppeledere: Trine Ranheim/Pål Aukrust

Om gruppen:

Kardiovaskulær sykdom (CVD) er den ledende årsak til død globalt. De fleste former for CVD er assosiert med betennelse. Aterosklerose og kronisk hjertesvikt er tilstander som er karakterisert ved en kronisk inflammatorisk fenotype, mens hjerteinfarkt og hjerneslag, de direkte konsekvensene av åreforkalkning, er akutte inflammatoriske tilstander. Vår viktigste hypotese er at disse inflammatoriske prosessene, kroniske eller akutte, direkte bidrar til patogenesen av CVD. I løpet av de siste årene har gruppen vår gradvis skiftet fokus fra hjertesvikt til åreforkalkning, overvekt og relaterte metabolske forstyrrelser.

Ved å studere hvordan spesifikke komponenter i den inflammatoriske responsen påvirker CVD-progresjon og også hvordan betennelse initieres, vedlikeholdes og avsluttes, har gruppen vår det ambisiøse målet å utvikle nye strategier for å forebygge, identifisere og behandle forskjellige former for CVD og relaterte metabolske forstyrrelser.

Vår gruppe har en translasjonsforskningsprofil. Vi bruker eksperimentelle musemodeller for å etterligne CVD-utvikling og karakterisere de patogene prosessene som er involvert. I tillegg inkluderer vår forskningstilnærming in vitro-studier i primære isolerte celler fra menneske og mus, så vel som kliniske studier på godt karakteriserte pasienter med CVD, og undersøker prøver fra perifert blod så vel som vevsprøver. Det ultimate målet er å utvikle nye behandlingsmetoder ved CVD og relaterte lidelser.

About the group:

Cardiovascular disease (CVD) is the leading cause of death globally. Most forms of CVD are associated with inflammation. Atherosclerosis and chronic heart failure are conditions characterized by a chronic non-resolving inflammatory phenotype, while myocardial infarction and stroke, the direct consequences of atherosclerosis, are acute inflammatory conditions. Our main hypothesis is that these inflammatory processes, chronic or acute, directly contribute to the pathogenesis of CVD. During the recent years our group has gradually shift the focus from heart failure to atherosclerosis and obesity and related metabolic disturbances.

By studying how specific components of the inflammatory response affects CVD progression and also how inflammation is initiated, maintained and terminated, our group has the ambitious aim to develop novel strategies for preventing, identifying and treating different forms of CVD and related metabolic disorders.

Our group has a translational research profile. We use experimental mouse models to mimic CVD development and characterize the pathogenic processes involved. In addition, our research approach includes *in vitro* studies in primary isolated cells from man and mouse, as well as clinical studies in well characterized patients with CVD, examining samples from peripheral blood as well as tissue samples. The ultimate goal is to develop new treatment modalities in CVD and related disorders.

Hovedmedlemmer / Main members:

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Collaboration:

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- Prof. Ivar Sjaastad, Institutt for eksperimentell medisinsk forskning, OUS Ullevål
- Prof. Kåre-Olav Stensløkken, Institutt for Medisinske basalfag, UiO

International:

- Prof. Erik A. Biessen, University of Maastricht, The Netherlands

Aktivitet i 2019 / Activity in 2019:

Innate immune responses in cardiac injury, atherosclerosis and related metabolic disorders.

We study three arms of the innate immune system: (1) The NLRP3 inflammasome, a platform for the post-translational activation of IL-1β. In addition to studies on the pathogenic consequences of activation of the NLRP3 inflammasome in CVD, we have projects where we investigate how the inflammasome is activated. (2) The role of the complement system in clinical and experimental atherosclerosis. (3) Effective resolution of inflammation is important to prevent progression of acute inflammation to non-resolving chronic inflammation. Inflammation resolution is a coordinated and active process, and we are currently examining how this is regulated in different forms of CVD.

DNA damage and repair in atherosclerosis and heart failure.

Aging, reactive oxygen species and chronic stress cause damage to both nuclear DNA (nDNA) and mitochondrial DNA (mtDNA) and this is proposed to contribute to development of non-communicable disease such as CVD. We believe that DNA damage and the associated DNA repair mechanisms are centrally involved in the pathogenesis of both atherosclerosis and heart failure by promoting non-resolving inflammation. We are currently examining this hypothesis experimentally, using mouse models that are deficient in DNA repair enzymes or have increased DNA repair activity.

FUNDING

Our work in 2019 was based on funding from Helse Sør-Øst RHF, Research Council of Norway, UNIFOR-FRIMED, Anders Jahres fond til vitenskapens fremme. In addition we are partners in an EU supported project *ERA-NET in CVD.*

Forskningsgruppe: Innflammatoriske biomarkører ved kardiovaskulære og metabolske sykdommer

RESEARCH GROUP: Inflammatory Biomarkers in Cardiovascular and Metabolic Disease

Avdeling: Institutt for indremedisinsk forskning

Gruppeleder: Thor Ueland

Om gruppen: Gruppen består av forskere og post-docs som fokuserer på inflammasjons markører målt i blod ved forskjellige sykdommer hvor inflammasjon kan være medvirkende i sykdomsprogresjon, samt utgjøre behandlings mål. Medlemmene har ulik bakgrunn, noen med biokjemisk og molekylær biologisk bakgrunn, leger med spesialisering, og epidemiologer med resisterdata bakgrunn. Fokusfeltene er innen kardiovaskulær sykdom og endokrinologi.

About the group: The group consists of scientist and post-docs and we focus on inflammatory markers in blood in disease where inflammation may contribute to disease progression, and represent interventional targets. The members have different backgrounds including biochemistry and molecular biology, specialized MDs, and epidimiologists. We work with patient populations with cardiovascular and endocrine/metabolic disease.

Hovedmedlemmer / Main members:

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Aktivitet i 2019 / Activity in 2019:

Hilde Norum took her PhD entitled “Soluble Notch Ligands in Heart Failure” may 27 2019.

Post Docs Søren Beck Jensen and Mashhood Ahmed Sheik started their post doc periods focusing on inflammatory markers in severe mental illness.

The main members contributed altogether to 52 publications in 2019.

Forskningsgruppe: Eksperimentell leverforskning

Research Group: Experimental hepatology

Avdeling: NoPSC / IIF

Gruppeleder: Espen Melum

Om gruppen:
Hovedmålet med forskningen i gruppen er å forstå mekanismer som regulerer betennelse i gallegangene med fokus på immunologi. I tillegg driver vi basal forskning relatert til funksjonen til natural killer T-celler og mucosal associated invariant T (MAIT)-celler. Disse cellene er spesielt interessant for leversykdom siden de er tilstede i et stort antall i leveren.

About the group:
The main aim of our research is to understand mechanisms regulating cholangitis with a clear focus on immunology. In addition to the cholangitis focused studies, we are also doing basic research related to the function natural killer T-cells and mucosal associated invariant T (MAIT)-cells. NKT and MAIT cells are especially interesting in the context of liver diseases since they are abundantly present in the liver.

Hovedmedlemmer / Main members:

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Assosierte medlemmer / Associated members:

NAME	POSITION/TITEL/ROLE	EMPLOYER/ AFFILIATION	E-MAIL
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Aktivitet i 2019 / Activity in 2019:

The experimental liver research group is focusing on experimental and translational studies related to primary sclerosing cholangitis (PSC). The most important tools in our research are mouse models that model aspects of cholangitis development. The group represents one of the three research group at the Norwegian PSC research center. All of our laboratory activities take place at the Research institute for Internal Medicine. In 2019, the group consisted of the group leader, two postdocs, four PhD students, the lab manager and two part-time technicians. The main aim of our research is to understand mechanisms regulating cholangitis with a clear focus on immunology but also now incorporating aspects of regenerative medicine. In addition to the cholangitis focused studies, we are also doing basic research related to the function natural killer T-cells, mucosal associated invariant T (MAIT)-cells and other immune subsets. NKT and MAIT cells represents unconventional T-cells that are especially interesting in the context of liver diseases since they are abundantly present in the liver. The ultimate goal of our research is to understand the pathology of and uncover potential novel treatment target for PSC.

The mouse models we use are immune driven which is in concordance with the leading theories on PSC pathogenesis. In 2019, we continued the hunt for antigens for unconventional T cell antigens in bile and discovered that bile contains antigens for the two major sub-types of unconventional T cells, NKT and MAIT cells. It seems like these antigens are both endogenous and exogenous, and studies are ongoing to determine their molecular identity. As part of the basic studies on the function of NKT cells we published in 2019 that sphingomyelin can block development and activation of NKT cells and affect several disease models. These results were also translatable to the human disease. The team working on unconventional T cells were strengthened in 2019 with Kathrine S. Åsrud who joined as postdoc and will work on the specific role of CD1d on cholangiocytes during bile duct inflammation. Tine Simensen Oldereid started as a new PhD student in the group on a collaborative project with Ass. Prof. Henrik Rasmussen at the animal facility using the germ-free unit to study microbiome regulation of bile duct inflammation and development of the immune system. A new line of collaboration with Prof. Stefan Krauss at the center of excellence Hybrid-technology-hub was started up in 2019 where our competence in bile duct biology will be used together with other groups at the hub. In a collaborative project involving a new Scientia Fellow postdoc we also aim to study the bile ducts using organ-on-a-chip systems.

Forskningsgruppe: Inflammasjonssykdommers genomikk og metagenomikk

Research group: Genomics and metagenomics in inflammatory diseases

Avdeling: Institutt for indremedisinsk forskning / Research institute of internal medicine (and Norwegian PSC Research Center)
Gruppeleder: Johannes R. Hov, j.e.r.hov@medisin.uio.no

Om gruppen:
Forskningsgruppen studerer i hvilken grad tarmfloraen påvirker kroniske betennelsessykdommer. Vi studerer tarmfloraen særlig ved hjelp av genetiske (sekvensering) og biokjemiske (metabolittundersøkeleser) metoder, og benytter tverrsnittsstudier, oppfølgingsstudier og behandlingsforsøk. Hovedmålet er å lete etter sykdomsårsaker, men med et særlig fokus på å etablere klinisk tarmfloramedisin som et eget felt med vekt på biomarkører og behandling.

About the group:
The research group is studying the influence of the gut microbiome on inflammatory diseases. We use genetic and metabolomic methods, and cross-sectional, longitudinal and interventional designs. The main aims are to identify causes of diseases and to establish microbiota medicine as a clinical field with an emphasis on biomarkers and therapy.

Hovedmedlemmer / Main members:

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Aktivitet i 2019 / Activity in 2019:

A series of important events on the organizational and financial side took place in 2019:

- Official opening of the ERC Starting Grant project StopAutoimmunity April 1, 2019. The project aims to utilize the window of opportunity provided when autoimmune liver disease recurs after liver transplantation to identify key microbial factors driving such diseases.
- The Regional research network for clinical microbiota Science (ReMicS) funded by the Regional Health Authorities South-Eastern Norway was officially opened with a kick-off seminar with the participating groups on June 4, 2019. ReMicS is a multi-disciplinary network of scientific and clinical excellence aiming to lay the foundzation for clinical microbiota medicine, i.e. therapy stratified by or targeting the microbiome. www.microbiota.no was re-designed for this purpose.
- We were awarded a Strategic research area of Oslo University Hospital – "Personalized microbiota therapy in clinical medicine", which aims to develop and perform microbiota directed clinical trials to develop new biomarkers and treatment.
- The 6th National microbiota conference was organized on November 19, 2019, as usual as a great success with around 100 participants.

Regarding scientific progress, many of the projects of our group and the closely integrated Trøseid group also reached important milestones:

- Our first shotgun metagenome project in PSC is steadily progressing in a collaboration with Andre Franke's group In Kiel and is now very close to submission. This work is a crucial basis for the further investigation of recurrent PSC in the StipAutoimmunity project. Additional projects aim to study genetics and autoimmune features were gut microbiome may be relevant.
- In heart failure, the GutHeart interventional trial using antibiotics and probiotics finished inclusion and follow-up. The analyses are ongoing in 2020.
- In HIV, a very large Oslo-Copenhagen collaborative study comprising >500 patients identified a microbial signature linking immunodeficiencies to metabolic complications independent from multiple strong confounders.
- In inflammatory bowel disease, funding was secured for the analysis of the large population-based IBSENIII study, utilizing modern metagenomics and machine-learning methodology.

In addition, a large number of people are working on projects within the general framework outlined above, with clinical translation as one important goal.

Forskningsgruppe: Immunopathogenetic mechanisms in immunodeficiency and infectious disorders

Research group: Immunopathogenetic mechanisms in immunodeficiency and infectious disorders

Avdeling: Research Institute for Internal Medicine

Gruppeleder: Børre Fevang, MD, PhD

About the group:
The research group focus on immunopathogenesis in primary and secondary immunodeficiency such as Common variable immunodeficiency (CVID) and HIV and selected infectious diseases, in particular the study of chronic inflammation characterising these disorders. The aim is to improve the understanding of disease mechanisms and to discover new targets for therapeutic intervention. The group works in a translational setting combining close contact to the clinic, in particular Section of Clinical Immunology and Infectious Diseases at OUS, with access to a wide range of immunological methods through extensive collaboration with other groups

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Aktivitet i 2019 / Activity in 2019:

The group is currently working with several projects, including:

- Immunopathogenic mechanisms in CVID – a disease model for autoimmunity and persistent inflammation. Our group has for a long time used primary immunodeficiency in the form of CVID as a model for studying the immune system. In recent years we have been focusing on the interaction between gut microbiota, gut mucosa and local (intestinal) and systemic inflammation. Magnhild Eide Macpherson is continuing this work with her PhD that includes both the modulation of gut microbiota with rifaximin in CVID-patients and an exciting investigation into the anti-inflammatory effect of HDL in the same patients. This latter work is extended into a Post doc project for Silje Fjellgård Jørgensen that started up in 2019 and will include in-depth studies of epigenetic changes in gut mucosa from CVID-patients.
- Community-acquired pneumonia: a prospective observational study to explore etiology, risk factors and potential novel predictors of severe course and mortality. In close cooperation with Vestre Viken HA and Drammen Hospital the project applies new diagnostic methods to assess etiology and risk factors for severe course and mortality of pneumonia. In his PhD-project, William Siljan has been delving into the vast amount of data and samples previously collected, and his thesis was successfully defended in March 2019.
- Liv Hesstvedt defended her thesis "Candidemia in Norway and the Nordic countries" in February 2019. The thesis is partly based a national collaboration where data has been collected from laboratories and medical records from most Norwegian hospitals. Partly it is based on a Nordic collaboration using national epidemiological data. Supervisors are Ingvild Nordøy, Peter Gaustad and Fredrik Müller.
- Targeting the NLRP3 inflammasome in HIV infection. The research institute has a strong track record on HIV-research and this continues with Hedda Hoel's PhD project that looks at the NLRP3 inflammasome as a driving force of the systemic inflammation seen in HIV-infected patients. The NLRP3 inflammasome has been studied in cardiovascular disease by other groups at our institute, and the current project is an excellent example of how immunological insight gained from the study of one disease can be applied to new diagnoses. The project is led by Marius Trøseid who is also the main supervisor.
- Functional consequences of novel genetic variations in primary immunodeficencies and immune dysregulation (FUNPID). High-throughput sequencing has revolutionized the diagnostics of primary immunodeficiencies, giving a definite genetic diagnosis in complicated clinical cases. However, novel genetic variations of uncertain significance tend to show up and in close collaboration with established partners at Oslo University Hospital and the University of Oslo we have established a research-based diagnostic pipeline for these patients. These findings give us an extraordinary opportunity to characterize both new disease entities and new immunologic mediators. We are currently looking into a family with a possible gain-of-function mutation in IL-1R8.