



Fact Sheet Research



LMU Faculty of Medicine

The Faculty of Medicine and the University Hospital of Ludwig-Maximilians-Universität in Munich (LMU) are among European's leading centers of scholarly medicine. The university is connected to milestones and persons of the history of medicine: Wilhelm Conrad Röntgen (x-rays), Alois Alzheimer (neurodegenerative dementia), Max von Pettenkofer (hygiene), Adolf Friedrich Johann Butenandt (sexual hormones) and Feodor Lynen (cholesterol synthesis).

The faculty is member of all eight German Centers for Health Research (cancer, cardiovascular diseases, child and youth health, diabetes, infection, lung diseases, mental health and neurodegenerative diseases research). These centers reflect the foci of medical research that are actively pursued in Munich, from the basic preclinical and clinical disciplines to rare diseases research.

As part of the national program for excellence the faculty hosts the Munich Cluster for Systems Neurology. The faculty is speaker of six nationally supported Collaborative Research Centers ("Sonderforschungsbereiche") by the German Research Foundation (DFG) and coordinates ten national and European projects. Members of the faculty hold currently four Advanced Grants, two Consolidator Grants and nine Starting Grants by the European Research Council (ERC).

LMU University Hospital

"Gemeinsam. Fürsorglich. Wegweisend – Sharing. Caring. Pioneering." – is the mission of LMU University Hospital. Together with its patients and partners it strives for groundbreaking research and treatments in a caring environment.

Thanks to its achievements in research, teaching and patient care, the university hospital enjoys an excellent reputation both nationally and internationally. Its 11,173 staff members in the areas of medicine, patient care, administration, technology and maintenance are taking care of patients in 48 clinical departments, institutes and divisions. In addition, 53 interdisciplinary centers offer individual medical care. Interdisciplinary collaboration of experts from different medical areas enables efficient diagnosis and therapy. Close to 500,000 patients are treated annually at both locations, the Campus City Center and the Campus Großhadern. With 2,062 beds, LMU university hospital provides high standards of diagnosis, treatment and nursing, and is one of the largest university hospitals in Europe. The university hospital has an annual turnover of 1.3 billion Euro. This includes an annual research and teaching budget of 161 million Euro from the state of Bavaria. The faculty and the university hospital secure additional third-party funding of over 167 million Euro per year.





Campus City Center

LMU University Hospital is one of the largest hospital complexes in Germany. The Campus City Center is located only one kilometer from Marienplatz, the heart of Bavaria's capital. Its history dates back to the founding of a municipal hospital in 1813.

The Max von Pettenkofer Institute (1) is named after Max Joseph von Pettenkofer, the scientific founder of modern city sanitation and hospital hygiene. The Institute of Anatomy (2) was completed in 1907. It is one of the first steel concrete constructions in Germany. Other preclinical institutes of the faculty include the Institutes of Physiology (3), Medical Psychology (4), Ethics, History and Theory of Medicine (5), Pharmacology and Toxicology (6), Legal Medicine (7) and Pathology (8).

The Dr. von Hauner Children's Hospital (9) from 1846 is named after its founder, Dr. August von Hauner. The Departments of Psychiatry and Psychotherapy (10) saw Alois Alzheimer's first description of Alzheimer's disease and the work of Emil Kraepelin. Germany's first heart transplantation was performed in 1969 at the Department of Surgery (11) in Nußbaumstraße. Other departments of the university hospital at the Campus City Center include the Departments of Child and Adolescent Psychiatry, Psychosomatics and Psychotherapy (12), Dental Medicine (13), Oral and Maxillofacial Surgery and Facial Plastic Surgery (14), Radiation Oncology (15), Dermatology and Allergy (16), Radiology and Nuclear Medicine (17), Internal Medicine (18), Otorhinolaryngology (19) and Ophthalmology (20). Opened 2021, the modern, interdisciplinary "Klinikum Innenstadt" (21) with 200 patient beds bundles expertise in the fields of internal medicine, surgery, emergency aid and obstetrics and gynecology. On a total of additional 12,400 square meters of floor space it provides high-end medicine in the city center for generations of patients to come.

Biomedicine for Life and Quality of Life

The research profile of the Faculty of Medicine comprises six focal areas (columns). They are connected by the two interdisciplinary areas "Personalized Medicine" and "Digital Medicine" (rows).

	Molecular Biomedicine	Fight against Cancer	Inflammation and Infection	Vascular and Transplantation Medicine	Neuro- sciences	Medicine for Society
Personalized Medicine						
Digital Medicine						



Campus Großhadern

The Campus Großhadern hosts most of the high-tech medicine of the university hospital. The Main Patient Ward Building (1) is lovingly called "the toaster". It hosts 1,200 beds in total. Adjacent to it, the Surgical and Acute Care Center (2) houses emergency rooms, operating rooms and intensive care units. The main building is connected to the Lecture Halls (3), a main teaching site of the faculty. Together, these buildings form the heart of the university hospital Campus Großhadern. The Campus will be greatly expanded in the coming 20 years, including a new Children's Hospital (4). The university hospital is surrounded by a cluster of excellent biomedical, preclinical and clinical research centers including the Center of Stroke and Dementia Research (5). With the planned completion of the new research building "Interfaculty center for endocrine and cardiovascular disease network modeling and clinical transfer" (ICON) (6) in 2024 research in the field of endo-

crine and cardiovascular diseases will be bundeled and the translation from basic biomedical research to clinical application will be strengthened. A new joint building (7) will host both Microbiological and Virology Diagnostics and Cardiovascular Research in proximity to Neuropathology (8). The Gene Center (9), BioSysM, the Center for Molecular Biosystems (10), and the Faculty of Chemistry and Pharmacy (11) are strong partners in research and teaching. At the western border of the Campus Großhadern, separated by sports facilities and a small forest, lies the Biomedical Center (12) of the Faculty of Medicine, the LMU Biocampus Martinsried housing the Faculty of Biology (13), the Startup Campus (14) and the Max Planck Institutes for Neurobiology (15) and Biochemistry (16). Together, these institutions and the startup companies at Campus Großhadern and Martinsried form one of the largest and most active biomedical clusters in Europe.

Knowledge and Technology Transfer

LMU drives knowledge and technology transfer through its Technology Transfer Office (TTO) and its Innovation and Entrepreneurship Center (IEC). As per the new higher education innovation law in Bavaria

(BayHIG), this includes support for founders and startups. Student founders and scientist founders may receive office space, lab space, equipment, and other infrastructure for free or at greatly reduced rates. Similarly, LMU hospital is an active player in the incubation of knowledge and tech-based startups. Munich is an excellent spawning ground for young spin offs, offering unique conditions. The biotech cluster m4 in Grosshadern-Martinsried and the founders' center UnternehmerTUM are the largest of their kind in Europe. They are at the centre of an ecosystem that provides startups with ample infrastructure, support and cooperation partners. At the Medical Faculty and the LMU Hospital, there have been 30 startups in the past 20 years. Their innovative solutions cover a range from new pharmaceuticals therapies and novel diagnostics to applied software development and e-learning.

Awards:

2022 bytes for life - Innovation Prize by Stifterverband

- 2021 NEUREVO Science4Life Venture Cup
- 2019 Eisbach Bio Winner Startup Slam at BioEurope, Rising Stars Award, EIT Health Germany Headstart Awards
- 2019 Mecuris EIT Digital Challenge Winner, ANSYS-Best Start-Up
- 2019 Ferrosens BioVaria audience price for best startup presentation

Facts and Figures

Departments and staff



14 basic science and preclinical institutes 48 university hospital departments

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12,720 staff members, thereof: 1,547 basic science & preclinical 11,173 university hospital

Research



32 Mio. Euro third-party (basic science & preclinical)135 Mio. Euro third-party (university hospital)161 Mio. Euro research and teaching (university hospital)



4,021 publications, 32,749 JIF (total), thereof: 553 publications, 5,369 JIF (basic science & preclinical) 3,468 publications, 27,380 JIF (university hospital)

Academic Excellence



*university hospital, basic science, and preclinical institutes

Research consortia

- 1 Cluster of Excellence
- 6 Collaborative Research Centers (nationally funded, Speaker)
- 8 German Centers for Health Research
- 4 Advanced Grants, 2 Consolidator Grants,
 9 Starting Grants by the European Research Council (ERC)
- 10 coordinated EU- and BMBF network projects
- 10 coordinated doctoral and clinician scientist programs
- 13 G-BA Innovation Fund projects

Gottfried Wilhelm Leibniz Prizes



- Prof. Dr. Erika von Mutius (2013)Prof. Dr. Christoph Klein (2010)
- Prof. Dr. Magdalena Götz (2007)
- Prof. Dr. Peter B. Becker (2005)
- Prof. Dr. Christian Haass (2002)

Patient care



2,062 in-patient beds 83,551 in-patients (including day-care patients) 395,129 out-patients

Teaching



203 professors, thereof: 64 basic science & preclinical



139 university hospital63 habilitations



6,682 students, summer term 2021

7,1

7,123 students, winter term 2021/22

(numbers from 2021)



High impact publications of the past five years

Journal	Impact factor 2021	Number of publications 2017 to 2021
Lancet	202.7	49
New England Journal of Medicine	176.1	51
Nature Medicine	87.2	17
Nature	69.5	20
Cell	66.9	33
Nature Reviews Disease Primers	65.0	12
Lancet Neurology	59.9	36
Lancet Oncology	54.4	28
Annals of Oncology	51.8	55
Journal of Clinical Oncology	50.7	33
Lancet Diabetes & Endocrinology	44.9	13
Immunity	43.5	19
Intensive Care Medicine	41.8	10
Nature Genetics	41.3	36
Circulation	39.9	33
Cancer Cell	38.6	15
European Heart Journal	35.9	73

Selected journals with impact factor >35 and \geq 10 publications

German Strategy for Excellence ("Exzellenzstrategie")*



Synergy - Munich cluster for systems neurology (since 2012 -Prof. Dr. Dr. C. Haass)

DFG (Collaborative Research Centers, Graduate Colleges and Research Units)*



SFB 1123 - Atherosclerosis - Mechanisms and networks of novel therapeutic targets (since 2014 -Prof. Dr. C. Weber)



SFB 1064 – Chromatin dynamics (since 2013 -Prof. Dr. P. Becker)



SFB 1054 - Control and plasticity of cell-fate decisions in the immune system (since 2013 – Prof. Dr. T. Brocker)



SFB 914 - Trafficking of immune cells in inflammation, development and disease (since 2011 -Prof. Dr. B. Walzog)



TRR 152 – Maintenance of body homeostasis by TRP channel modules (since 2014 -Prof. Dr. T. Gudermann)



TRR 127 - Biology of xenogeneic cell and organ transplantation - from bench to bedside (since 2012 - Prof. Dr. B. Reichart, Prof. Dr. E. Wolf)



GRK 2621 - Predictors and outcomes in primary depression care (since 2021 – Prof. Dr. J. Gensichen)



GRK 2338 – Targets in toxicology - deciphering therapeutic targets in lung toxicology (since 2018 -Prof. Dr. T. Gudermann)



FOR 2879 - ImmunoStroke - From immune cells to stroke recovery (since 2019 - Prof. Dr. A. Liesz)

German Centers for Health Research ("Deutsche Gesundheitszentren")

DKTK – German Cancer DKTK Consortium (LMU speaker: Prof. Dr. Dr. M. von Bergwelt)



DZD – German Center for Diabetes Research (LMU speaker: Prof. Dr. E. Wolf)

DZHK - German Center for Cardiovascular Research DZHK (LMU speaker: Prof. Dr. C. DEUTSCHES ZENTRUM FÜR HERZ-KREISLAUF-FORSCHUNG Weber)

C. Klein)

Mutius)



DZIF – German Center for Infection Research (LMU speaker: Prof. Dr. M. Hoelscher)

DZKJ - German Center for

(LMU speaker: Prof. Dr. Dr.

Child and Youth Health

DZL – German Center

for Lung Research (LMU speaker: Prof. Dr. E. von

DZG DEUTSCHE ZENTREN





DZNE – German Center for Neurodegenerative Diseases (LMU speaker: Prof. Dr. Dr. C. Haass)

DZG DEUTSCHE ZENTREN DZPG - German Center for Mental Health (LMU speaker: Prof. Dr. P. Falkai

BMBF*



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UNITE4TB - United innovation and treatment for tuberculosis (2021 to 2028 Prof. Dr. M. Hölscher)

- CLINSPECT-M CLINSPECT-M - Clinical mass spectrometry center Munich (2020 to 2023 -Prof. Dr. D. Teupser)
 - MOBISTAR Mobilization of people in need of intensive care (2020 to 2023 -Prof. Dr. U. Fischer)

RESPONSE RESPONSE – Adaptation and clinical use of existing robotic systems (2020 to 2023 – Prof. Dr. U. Fischer)





gration for future medicine (2018 to 2026 - Prof. Dr. U.

MobilE-Net - Enabling participation by enabling mobility (2017 to 2023 -Prof. Dr. E. Grill)

Bavarian Center for Health Research



BZKF – Bavarian center for cancer research (LMU representatives: Prof. Dr. C. Belka, Prof. Dr. J. Mayerle)

G-BA Innovation Fund*

	Gemeinsamer Bundesausschuss	FissVers (2022 to 2023– Prof. Dr. J. Kühnisch)
	Gemeinsamer Bundesausschuss	EvidenT-HiP (2023 to 2024– Prof. Dr. C. Neuerburg)
	Gemeinsamer Bundesausschuss	S3 LL FASD (2022 to 2025– PD Dr. M. N. Landgraf
	Gemeinsamer Bundesausschuss	PARTNER (2022 to 2025 – Prof. Dr. J. Hübner)
	Gemeinsamer Bundesausschuss	VerSeErZ (2022 to 2024 – Prof. Dr. J. Kühnisch)
	Gemeinsamer Bundesausschuss	PÄD-ONKO-PALL (2022 to 2024 – Prof. Dr. M. Führer)
	Gemeinsamer Bundesausschuss	OptiNIV (2021 to 2025– Prof. Dr. A. Bender)
	Gemeinsamer Bundesausschuss	TARGET (2021 to 2023 – PD Dr. K. Berger-Thürmel)
	Gemeinsamer Bundesausschuss	FLS-CARE (2020 to 2024 – Prof. Dr. W. Böcker, Prof. Dr. C. Kammerlander)
	Gemeinsamer Bundesausschuss	INFO-LE (2020 to 2023 – Dr. I. Kirchberger)
_	Gemeinsamer Bundesausschuss	INTEGRATION-Program (2020 to 2023 – Prof. Dr. S. Theurich)
	Gemeinsamer Bundesausschuss	PoiSe (2020 to 2023 – Dr. F. M. Filippopulos)
	Gemeinsamer Bundesausschuss	TELE-KASPER (2020 to 2023 – Prof. Dr. J. Hübner)

European Union*



BiotaBB - Modulation of brain barrier function (2023 to 2026 – C. Benakis, PhD)



VasOX – Role of oxidative stress for neuro-vascular function (2023 to 2026 -Prof. Dr. N. Plesnila)



IMMOSCAN – The role of immuneosteoclasts in cancer (2022 to 2025 -Prof. Dr. H. Taipaleenmäki)



TRACE - Transfer of multivirusspecific T-cells (2018 to 2023 - Prof. Dr. T. Feuchtinger)

European Research Council (ERC)





Dean

Prof. Dr. Thomas Gudermann

Faculty of Medicine



Vice Dean

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Prof. Dr.



Dean of Research

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Chief Medical Officer & CEO Prof. Dr. Markus M. Lerch



Chief Commercial Officer

Markus Zendler



Chief Nursing Officer (acting)

Alfred Holderied



Else Kröner-Fresenius Clinician Scientist Program - Translational psychiatry (2017 to 2023 - Prof. Dr. P. Falkai)

Elite Network of Bavaria of cancer (2014 to 2023 -Prof. Dr. S. Endres)

Else Kröner-Fresenius "Promotionskolleg" – FöFoLe Inflammation (2021 to 2024 - Prof. Dr. H. Anders)

Else Kröner-Fresenius

Clinician Scientist Program

- Immuno-oncology and

local intervention (2022 to

2025 - Prof. Dr. S. Kobold)



Else Kröner Fresenius

Stiftung

Else

Kröner Fresenius

Stiftung

T-MEMORE - Thrombotic

memory-linking a break in

tolerance to platelets to re-

thrombosis (2020 to 2025

Proteofit - Adapting pro-

tein fate for muscle function

and fitness (2019 to 2024 -

Neuroprecise - Precision

injury (2019 to 2024 -Prof. Dr. I. Koerte)

RecoverInFlame - T-cell-

recovery after acute brain

ARMOR-T - Armoring multi-

functional T-cells for cancer

therapy (2018 to 2023 -

AstroNeuroCrosstalk -

Astrocyte-neuronal cross-

diabetes (2018 to 2023 -

Prof. Dr. C. García Cáceres)

Baby DCs - Age-dependent

development (2017 to 2023

regulation of dendritic cell

- Prof. Dr. B. Schraml)

Prof. Dr. S. Kobold)

talk in obesity and

driven inflammatory

mechanisms promote

injury (2018 to 2023 -

Prof. Dr. A. Liesz)

medicine in traumatic brain

- Prof. Dr. K. Stark)

Prof. Dr. A. Bartelt)

Starting Grant

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Doctoral Programs,

Clinician Scientist Programs*

Marie Curie ITN - T- OP -Training network for optimizing adoptive T-cell therapy of cancer (2020 to 2024 -Prof. Dr. S. Kobold)

Marie Curie ITN – Cell2Cell heterogeneity (2019 to 2023 – Dr. S. Braun, Prof. Dr. T. N. Siegel)



ell2ce

PRIME - Clinician scientist program in vascular medicine (2018 to 2024 -Prof. Dr. S. Massberg)



Else Kröner-Fresenius Clinician Scientist Program Cancer immunotherapy (2017 to 2023 - Prof. Dr. M. Subklewe)

Else Kröner Fresenius Stiftung



i-Target – Immunotargeting



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