LMU HOSPITAL

LMU LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN FACULTY OF MEDICINE

Fact Sheet Research 2024

LMU Faculty of Medicine

The Faculty of Medicine and the University Hospital of Ludwig-Maximilians-Universität in Munich (LMU) are among Europe's leading centers of academic 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 adolescent 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. Faculty members are speaker of five nationally supported Collaborative Research Centers ("Sonderforschungsbereiche") by the German Research Foundation (DFG) and coordinate eight European, BMBF and Bavarian projects. Members of the faculty hold currently three Advanced Grants, six Consolidator Grants and seven 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 ground-breaking 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 11,309 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 157 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.

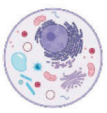
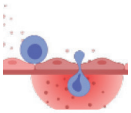
The **Max von Pettenkofer Institute (1)** is named after Max Joseph von Pettenkofer, the scientific founder of modern city sanitation and hospital hygiene. The **Institute of Anatomy (2)** was completed in 1907. It is one of the first steel concrete constructions in Germany. Other preclinical institutes 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)** witnessed 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 comprises 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 endocrine 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.

M1 - Munich Medicine Alliance

M1 – Munich Medicine Alliance is a strategic partnership to advance medical progress and further improve the quality of healthcare in Munich, Bavaria and beyond. To this end, Ludwig-Maximilians-Universität München,Technical University of Munich and their respective University Hospitals pool their strengths with Helmholtz Munich.

LMU University Hospital and Klinikum Rechts der Isar together treat more patients than any other university medical center in Germany. Cross-institutional research collaborations such as clusters of excellence and collaborative research centers have already been established between the partners and from a strong basis in research. Among them all eight German Centers for Health Research – a unique position in Germany.

By bundling their potential, the alliance aims to expand Munich's position as a premier research campus for innovative cutting-edge medicine nationally and internationally. A common infrastructure for clinical studies a common data center, and a technology platform form the backbone for joint fast-track research.

Visible flagship-projects by established groups and for high-risk next-generation projects are ramped up over the coming years. The alliance is part of the Highmed Agenda Bayern and funded by the state of Bavaria and its ministry of Science and the Arts.

Facts and Figures

Departments and staff

14 basic science and preclinical institutes
48 university hospital departments, divisions and institutes

12,868 staff members, thereof:
1,559 basic science & preclinical
11,309 university hospital

Research

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

3,788 publications, 29,629 JIF (total), thereof:
565 publications, 5,149 JIF (basic science & preclinical)
3,223 publications, 24,480 JIF (university hospital)

2,322 clinical studies
710 interventional studies

Patient care

2,062 in-patient beds
83,406 in-patients (including day-care patients)
400,883 out-patients

Teaching

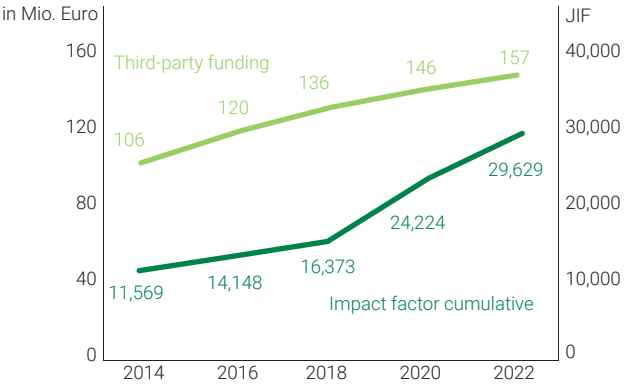
201 professors, thereof:
64 basic science & preclinical
137 university hospital

73 completed habilitations
679 completed doctoral degrees

6,784 students, summer term 2022
7,149 students, winter term 2022/2023

(numbers of 2022)

Academic Excellence



Research consortia

- 1 Cluster of Excellence
- 5 Collaborative Research Centers (nationally funded, Speaker)
- 8 German Centers for Health Research
- 3 Advanced Grants, 6 Consolidator Grants, 7 Starting Grants by the European Research Council (ERC)
- 8 coordinated EU, BMBF and Bavarian network projects
- 8 coordinated doctoral and clinician scientist programs
- 4 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)

High impact publications of the past five years

Journal	Impact factor 2022	Number of publications 2018 to 2022
Lancet	168.9	48
New England Journal of Medicine	158.5	43
Nature Medicine	82.9	19
Nature Reviews Disease Primers	81.5	12
Nature	64.8	28
Cell	64.5	31
Science	56.9	12
Lancet Oncology	51.1	23
Annals of Oncology	50.5	45
Cancer Cell	50.3	12
Lancet Neurology	48.0	38
Journal of Clinical Oncology	45.3	33
Lancet Diabetes & Endocrinology	44.5	15
European Heart Journal	39.3	76
Circulation	37.8	34
Immunity	32.4	17
Nature Genetics	30.8	37
Cell Host & Microbe	30.3	10

Selected journals with impact factor >30 and ≥ 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)

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 5621– OCU-GT – Adressing the unmet needs in ocular gene therapy (since 2024 – Prof. Dr. S. Michalakis)

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 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 (LMU speaker: Prof. Dr. C. Weber)

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

DZKJ - German Center for Child and Adolescent (LMU speaker: Prof. Dr. Dr. C. Klein)

DZL – German Center for Lung Research (LMU speaker: Prof. Dr. E. von Mutius)

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

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

BMBF*

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

CLINSPECT-M – Clinical mass spectrometry center Munich (2020 to 2026 – Prof. Dr. D. Teupser)

DIFUTURE – Data integration for future medicine (2018 to 2026 –Prof. Dr. U. Mansmann)

Bavarian Research Consortia

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

BAYCELLator – The Bavarian cell therapy catalyst (2023 to 2026 – Prof. Dr. S. Kobold)

G-BA Innovation Fund*

WELCOME (2023 to 2026 – Prof. Dr. U. Fischer)

PARTNER (2022 to 2025 – Prof. Dr. T. Dreischulte)

OptiNIV (2021 to 2025– Prof. Dr. A. Bender)

FLS-CARE (2020 to 2024 – Prof. Dr. W. Böcker, Prof. Dr. C. Kammerlander)

European Union*

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

ERA-NET 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 2024 – Prof. Dr. T. Feuchtinger)

* with speaker or coordinator function at LMU

European Research Council (ERC)

Advanced Grant – APROSUS – Microbiome-derived asthma and allergy protective substances for prevention (2023 to 2027 – Prof. Dr. E. von Mutius)

Advanced Grant – NeuroCentro – Novel mechanisms of neurogenesis (2020 to 2025 – Prof. Dr. M. Götz)

Advanced Grant – Immunothrombosis – Cross-talk between platelets and immunity (2019 to 2024 – Prof. Dr. S. Massberg)

Consolidator Grant – IMPROVE_LIFE – Investigate maternal and paternal risk factors for violence during pregnancy (2024 to 2029 – Prof. Dr. H. Stöckl)

Consolidator Grant – CATACLIS – Cancer tailored nextgeneration cellular therapies (2024 to 2029 – Prof. Dr. S. Kobold)

Consolidator Grant – switchDecoding – Decoding the path to cellular variation within pathogen populations (2023 to 2028 – Prof. Dr. N. Siegel)

Consolidator Grant – ExoDevo – Extracellular vesicles-mediated cross-talk during human brain development and disease (2023 to 2028 – Prof. Dr. S. Capello)

Consolidator Grant – Calvaria – Translational aspects of the discovery of skull marrow-meninges connections (2021 to 2025 – Prof. Dr. A. Ertürk)

Consolidator Gran – EvoGutHealth – Evolution of gut-associated microbial communities (2020 to 2025 – Prof. Dr. B. Stecher)

Starting Grant – MEKanics – Cell mechanics of megakaryocytes in 3D tissues - deciphering mechanobiology of platelet formation (2023 to 2028 – Prof. Dr. Florian Gärtner)

Starting Grant – EpiCblood – Towards early cancer detection and tumor classification using epigenomic biomarkers in blood (2023 to 2028 – Dr. Rodrigo Villaseñor)

Starting Grant – ImmGenDC– Dissecting the context-specificity of genetic immune regulation in plasmacytoid dendritic cells (2023 to 2028 – Dr. S. Kim-Hellmuth)

Starting Grant – oxDOPAMIN – Unraveling the mystery of preferential degeneration of midbrain neurons (2021 to 2026 – Prof. L. Burbulla)

Starting Grant – T-MEMORE – Thrombotic memory-linking a break in tolerance to platelets to re-thrombosis (2020 to 2025 – Prof. Dr. K. Stark)

Starting Grant – Proteofit – Adapting protein fate for muscle function and fitness (2019 to 2024 – Prof. Dr. A. Bartelt)

Starting Grant – Neuroprecise – Precision medicine in traumatic brain injury (2019 to 2024 – Prof. Dr. I. Koerte)

Doctoral Programs, Clinician Scientist Programs*

Else Kröner Fresenius Stiftung – Else Kröner-Fresenius Clinician Scientist Program –Transplantation medicine – strategies for ex vivo repair of donor livers and kidneys (2023 to 2026 – Prof. Dr. C. Lange)

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

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

cell2cell heterogeneity – Marie Curie ITN – Cell2Cell heterogeneity (2019 to 2024 – Dr. S. Braun, Prof. Dr. T. N. Siegel)

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

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References: Annual report 2022, EvaLuna 2012, 2017, 2022, DFG, EU, BMBF, Else Kröner-Fresenius Stiftung, Elitenetzwerk Bayern, G-BA

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