



Curriculum vitae: Priv.-Doz. Dr. Dr. Markus Eckstein

Contact Information

Address: Institute of Pathology, Universitätsklinikum Erlangen & FAU Erlangen-Nürnberg,
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Current Position

Managing Senior Physician and Research Group Leader, Institute of Pathology, Universitätsklinikum Erlangen (Director: Prof. Dr. A. Hartmann)

Academic Education and Degrees

2009 - 2015	Medical School FAU Erlangen-Nürnberg
2015	State Examination & License to practice medicine
2016	<u>Dissertation</u> (MD, Dr. med.; magna cum laude), Emil-Fischer-Center for Biochemistry, FAU Erlangen-Nürnberg
2020-2023	Structured <u>advanced Clinician Scientist Program</u> (MD/PhD CSP) of the FAU Erlangen-Nürnberg (dissertation currently under review)
2023	<u>Habilitation</u> and Venia legend in Pathology, FAU Erlangen-Nürnberg
2025	<u>Second Dissertation</u> (PhD, Dr. rer. biol. Hum; summa cum laude), Institute of Pathology, University Hospital Erlangen, FAU Erlangen-Nürnberg

Professional and Medical Career

2016 - 2023	<u>Residency</u> in surgical and molecular pathology, Institute of Pathology, University Hospital Erlangen (Director: Prof. Dr. Arndt Hartmann)
2022	<u>Board Certification</u> for Pathology and Molecular Pathology, Bayerische Landesärztekammer, Munich
Since 04/2023	<u>Attending Physician</u> , Institute of Pathology, Universitätsklinikum Erlangen (Director: Prof. Dr. Arndt Hartmann)
Since 2023	<u>Section head of the central clinical trial and study unit</u> of the Institute of Pathology & <u>routine diagnostics laboratory</u>
Since 2025	<u>Section head of the CCC/NCT Tissue Biobank within CeBE</u> (Central Biobank Erlangen)
Since 07/2025	Managing Senior Physician ("Geschäftsführender Oberarzt"), Institute of Pathology, Universitätsklinikum Erlangen (Director: Prof. Dr. Arndt Hartmann)
12/2024	<u>Selection</u> for an <u>Else Kröner-Fresenius Clinician Scientist Professorship (W3)</u> in "Translational Immune Pathology" at University Hospital Erlangen and the Medical Faculty of Erlangen-Nuremberg (process ongoing)

Other Commitments

2019 – 2023	Associate member patient advocacy and patient information working group of the European Society of Urology (EAU)
2020 – 2022	Advisory Board Member of Diaceutics
2020 – 2023	Associate member of the EAU section of uropathology (ESUP)
Since 2023	<u>Board Member</u> of the EAU section of uropathology (ESUP)



2021 – 2023	Fellow's speaker and board member of the FAU Clinician Scientist Program
Since 2024	Ex-officio <u>Board Member</u> of the EAU section of urological research (ESUR)
Since 2024	Member of the <u>Clinical Advisory Board of Bicycle Therapeutics</u> , Cambridge, United Kingdom
Since 2024	<u>Board Member</u> of the BRIDGE Consortium (https://bladder-bridge.squarespace.com/)
Since 06/2025	<u>Deputy speaker</u> of the Uropathology Section ("AG Uropathologie") of the German association of Pathology (DGP)

Reviewing Activities:

npj Precision Oncology, Cancer Immunology Research, Nature, European Urology, European Urology Oncology, Modern Pathology, Journal of immunotherapy of cancer, Virchows Archiv, British Journal of Cancer, British Medical Journal, The Journal Of Clinical Oncology

Teaching Activities

2016 -	Clinical autopsy courses for medical students, FAU Erlangen-Nürnberg, Germany
2017 -	Applied histopathology training courses for medical students, FAU Erlangen-Nürnberg, Germany
2021 -	General lectures on special pathology and molecular pathology for medical students, FAU Erlangen-Nürnberg, Germany

Society Memberships

2016	German Association of Pathology (<u>DGP</u>), International Academy of Pathology (<u>IAP</u>)
2016	Bladder Cancer Research Initiative for Drug Targets (<u>BRIDGE</u>)
2017	European Association of Urology (<u>EAU</u>)
2019	German Association of Targeted and Immune Therapy (<u>DGFIT</u>)
2024	German Society of Urology (DGU)

Research Focus

- Translational tumor immunology and immunopathology with focus on urothelial cancer, head and neck squamous cell carcinoma and autoimmune diseases.
- Deep spatial tissue phenotyping with single cell spatial transcriptomics, proteomics and single cell analytics of tissue samples for discovery of tissue niches and cellular networks in cancer and autoimmune diseases.
- Development of bioinformatical data analysis pipelines for multimodal multi-omics data including artificial intelligence tools.
- Reference pathology and biomarker research in clinical trials.

Major Scientific Awards

2025: Maximilian-Nitze Price of the German Society of Urology (DGU)
 2025: Virchow Price of the German Society of Pathology (DGP)
 2024: Science and Innovation Award in Urooncology of the German Society of Urology (DGU)
 2024: Thiersch price for best habilitation at the Medical Faculty of the FAU Erlangen-Nürnberg in 2023
 2021: Price of the CE Alken-Foundation for extraordinary scientific contributions to the field of urological research.
 2021: Price of the Hochgesand-Foundation for extraordinary scientific contributions to the field of pathology.
 2021: Best Paper "Basic Research" of the EAU 2021
 2019: Clinical Science Award of the (DGFIT)



Invited Oral Meeting Presentations (selected)

- 2024 „Resistance mechanisms to antibody drug conjugates”, International Bladder Cancer Network Annual Meeting (IBCN)
- 2024 “AI in bladder cancer pathology and research: What can we expect and what not?”, AACR Bladder Congress
- 2024 “Spatial transcriptomics/proteomics: understanding the tumor complexity”, EAU Annual Meeting
- 2023 “Dissecting the spatial immune microenvironment of urothelial cancer”, ESUR Annual Meeting
- 2023 “Molecular and immunological differences between primary bladder Tumors and metastasis and”, EMUC Satellite Symposium of EAU and ESMO
- 2022 Immunoscoring of urothelial cancer, ESUR Annual Meeting, 2022



Publication Metrics

H-Score (google scholar): 36; i10-index 137 (google scholar). Web of Science: H-Score 31.

Current and Ppast Funding:

Funded Project	Funding Agency/Company	Funding Sum
German Biomarker Substudy of the Phase III NIAGARA Trial (2021-2028) PI: Markus Eckstein	AstraZeneca Ltd./ MedImmune	Total: 380.050,00 Euro
Value of FGFR alterations on treatment outcomes in muscle invasive bladder cancer (MIBC): a single center RWE collaboration project (2020-2027) PI: Markus Eckstein	Janssen Research & Development, LLC	Total: 889.516,00 Euro Total for UKER: 538.340,00 Euro
Role of FGFR alterations on subjects with metastatic urothelial cancer undergoing checkpoint inhibition (FOSMIC-Trial; 2018-2021) PIs: Markus Eckstein	Janssen Research & Development, LLC	Total: 800.000,00 Euro 190.535,50 Euro
MONITURB-Trial (2017-2021) PIs: Markus Eckstein	Cepheid	11.635,94 Euro
Role of FGFR alterations in stromal invasive urothelial bladder cancer (2019-2021) PIs: Markus Eckstein	Janssen Research & Development, LLC	138.985,37 Euro
ELAN-Project: ERVs in the anti-tumoral immune response via IFN-signaling during development of MIBC (2020-2021) PI: Markus Eckstein	IZKF - FAU-Erlangen-Nürnberg	48.650,00 Euro
Clinician Scientist Program Step 2 - FAU Erlangen-Nürnberg – Structured Program and Rotation Salary (2020-2022)	IZKF - FAU-Erlangen-Nürnberg	100.000,00 Euro
Validation of a checkpoint molecular gene expression typer in locally advanced bladder cancer (2020-2021) PI: Markus Eckstein	Cepheid	33.452,39 Euro
Checkrad-CD8 Trial Pathology representative (2018-2024) PI: Dr. Markus Eckstein	Radiation Oncology UKER/AstraZeneca	50.000,00 Euro



Timing and induction of the immune response including ERV expression, tumor infiltrating lymphocytes, tertiary lymphoid structures and tumor subtype commitment during development of muscle-invasive urothelial carcinoma. (2022-2024) PI: Dr. Markus Eckstein	Else Kröner-Fresenius-Stiftung (First application program)	136.391,00 Euro
Developing an artificial intelligence based classifier for FGFR alterations in various stages of urothelial bladder cancer. (2022-2027) PI: Dr. Markus Eckstein	Janssen Research & Development, LLC	403.000,00 Euro
HANCOCK – Establishment of a multidimensional Head and Neck Cancer Dataset (2022-2024) PIs: Prof. Andreas Kist, Dr. Markus Eckstein, PD Dr. Antoniu-Oreste Gostian	BMBF	Total Funding: 270.000,00 Euro Own Funding: 56.000,00 Euro
Deciphering the role of TROP2 and its interplay with NECTIN-4 and Her2neu expression in muscle-invasive urothelial cancer of the bladder (2022-2028). PIs: Dr. Markus Eckstein	Gilead	562.838,00 Euro
Robust high-throughput spatial characterization (multi-Omics) of the immunological microenvironment on the "use case" of metastatic urothelial carcinoma under immune checkpoint inhibitor therapy. (2022-2023) PI: Dr. Markus Eckstein	Bayerisches Zentrum für Krebsforschung (BZKF)	100.000,00 Euro
Timing and induction of the immune response including ERV expression, tumor infiltrating lymphocytes, tertiary lymphoid structures and tumor subtype commitment during development of muscle-invasive urothelial carcinoma. (2023) Rotation Salary to Dr. Markus Eckstein	IZKF - FAU-Erlangen-Nürnberg	48.750,00 Euro
Translational spatial tumor immunobiology of urothelial cancer. (2022-2023)	IZKF - FAU-Erlangen-Nürnberg	59.850,00 Euro



PI: Dr. Markus Eckstein		
NSCLC PREDICT – Predicting Immunotherapy Responses of NSCLC Patients using Deep Learning (2022-2024)	Owkin	138.809,00
PI: PD Dr. Markus Eckstein		
D41: Ferroptosis and phospholipid metabolism for chemo- and immunotherapy sensitization in urothelial cancer (2023-2026)	IZKF - FAU-Erlangen-Nürnberg	Total Funding: ~550.000,00 Euro Own Funding: ~267.300 Euro
PIs: Dr. Markus Eckstein & Prof. Felix Engel		
MOSAIC-Study: Comprehensive Spatial Multi-Omics Atlas of Cancer (2023-2030)	Owkin	Total Study Funding: 50.000.000,00 Euro Own Funding: 1.131.701,67 Euro
PIs: Dr. Markus Eckstein & PD Dr. Ramona Erber		
INITIATOR: Reduktion der Strahlenresistenz beim Pankreaskarzinom mittels neuartiger Inhibitoren gegen DYRK1A (2023-2024). PIs: Prof. Christian Pilarsky, PD Dr. Benjamin Frey, Dr. Markus Eckstein, Dr. Eva Lentsch	Bavarian Cancer Research Center (BZKF)	99.774,57 Euro
Deciphering immunotherapy resistance mechanisms in locally advanced and metastatic urothelial carcinoma (05/2024-04/2026).	Else Kröner-Fresenius-Stiftung	350.000,00 Euro
PI: Dr. Markus Eckstein		
An Investigation of Mechanisms of Response and Resistance to Enfortumab Vedotin in Urothelial Cancer (2024-2027)	United States Department of Defense//NIH	Total ~1.288.499 Euro Own Funding: 268.000,00 Euro
PIs: Dr. Markus Eckstein, Dr. Niklas Klümper, Dr. Joshua Meeks		
Decode the Antibody-Drug Conjugate Surfaceome in Metastatic Urothelial Cancer (DECODE-ADC)	Wilhelm Sander Stiftung	239,020 Euro Own Funding: 48,493 Euro
PIs: Dr. Markus Eckstein, Dr. Niklas Klümper, Prof. Christoph Kuppe		
Deep Learning to predict long-term survivors with glioblastomas (2024-2025)	Owkin	46.895,00 Euro
PI: PD Dr. Markus Eckstein		
Establishing a miRNA signature for prognostication and therapy	Deutsche Krebshilfe	Total: 321.825,00 Euro Own Funding: 78.300,00 Euro



choices in urothelial cancer of the bladder. (2024-2027) PI: Prof. Kerstin Junker (UKS) Co-PI: PD Dr. Markus Eckstein (UKER)		
Immunological risk stratification of patients with resectable muscle-invasive urothelial bladder cancer. (2025-2028) PI: PD Dr. Markus Eckstein Co-PI: Dr. Dr. Christian Matek	Deutsche Krebshilfe	256.615,00 Euro
Predictive Potential of NECTIN-4 amplification for BicycleTx manufactured bicycle peptide chemotherapy compounds (2024- ongoing) PIs: PD Dr. Markus Eckstein, PD Dr. Niklas Klümper (UK Bonn)	Bicycle Therapeutics (MTA 1-7)	193.371,50 Euro
Else Kröner-Fresenius Clinician Scientist Professur (2025-2035) PI: PD Dr. Markus Eckstein	Else Kröner-Fresenius-Stiftung	1.100.000,00 Euro
Panel Institute Lead for QuIP GmbH – FGFR3, PIK3CA, BRCA1/2, p16, PD-L1 multientity incl. digital read-out tests PI: PD Dr. Dr. Markus Eckstein (2022- open)	QuIP GmbH	178.263,60 Euro

Contributions to Clinical Studies:

- Checkrad-CD8 Trial – A multi-center Phase II interventional trial of induction chemo-immunotherapy (Durvalumab-Tremelimumab + Docetaxel/Cis-Platin) in locally advanced non-resectable head and neck squamous cell carcinoma (Active, recruiting closed)**
 Function: Reference pathologist and biomarker program leader (**Co-PI**; including digital spatial PD-L1 and CD8 assessment in 120 patients from 7 german centers; translational transcriptome wide tumor profiling of all included patients currently running).
- PeLeRAD Trial - Pembrolizumab and Lenvatinib After Definitive Chemoradiation of Locally Advanced head and neck squamous cell carcinoma (Phase II; active, ahead of recruiting).**
 Function: Reference pathologist and biomarker program leader (**Co-PI**; including digital spatial PD-L1 and CD8 assessment in 47 patients from 8 german centers); translational transcriptome wide tumor profiling and mutational profiling with TSO500 planned for comprehensive baseline profiling of patients.
- NIAGARA IMMUPRO – German biomarker substudy in the global phase III NIAGARA study (neoadjuvant Gemcitabine/Cis-Platin versus Gemcitabine/Cis-Platin + Durvalumab) in muscle-invasive urothelial carcinoma suitable for cystectomy (active, recruiting closed).**
 Function: **Principal investigator**; the study aims for comprehensive spatial tumor immune microenvironment analysis utilizing digital spatial immune cell profiling, transcriptome wide mRNA sequencing and whole exome sequencing in a total of 1:1 randomized 55 patients.
- PED-MSOT Study:**
 Function: **Lead Pathologist**. Assessment of gastrointestinal biopsies (reference assessment of CED scores).
- DUCORA-Trial:**



Function: **Lead Pathologist**. Assessment of neuroendocrine lung cancer samples (reference pathology).

- **CASTLE-Trial:**

Function: **Lead Pathologist**. Tissue immune monitoring of responses to anti CD-19 CAR T-cell therapies in patients with chronic inflammatory disorders.

- **REPAIR-HN-Trial:**

Function: **Lead Pathologist**. Tissue immune monitoring of responses to anti CD-19 CAR T-cell therapies in patients with chronic inflammatory disorders.

Supervised doctoral theses

Dr. med. Adrian Wullweber

Status: Completed

Role: Co-supervisor/mentor

Supervisor in the sense of the RpromO: Prof. Dr. med. Arndt Hartmann

Final grade: Summa cum laude, awarded the doctoral prize of the medical faculty of FAU Erlangen Nuremberg

Publications: *Wullweber A*, Strick R, Lange F, Sikic D, Taubert H, Wach S, Wullich B, Bertz S, Weyerer V, Stoehr R, Breyer J, Burger M, Hartmann A, Strissel PL, *Eckstein M*. Bladder Tumor Subtype Commitment Occurs in Carcinoma *In Situ* Driven by Key Signaling Pathways Including ECM Remodeling. **Cancer Res**. 2021 Mar 15;81(6):1552-1566. doi: 10.1158/0008-5472.CAN-20-2336.

Dr. med. Carolin Pfannstiel

Status: Completed

Role: Co-supervisor/mentor

Supervisor in the sense of the RpromO: Prof. Dr. med. Arndt Hartmann

Final grade: Magna cum laude

Publications: *Pfannstiel C*, Strissel PL, Chiappinelli KB, Sikic D, Wach S, Wirtz RM, Wullweber A, Taubert H, Breyer J, Otto W, Worst T, Burger M, Wullich B, Bolenz C, Fuhrich N, Geppert CI, Weyerer V, Stoehr R, Bertz S, Keck B, Erlmeier F, Erben P, Hartmann A, Strick R, *Eckstein M*. The Tumor Immune Microenvironment Drives a Prognostic Relevance That Correlates with Bladder Cancer Subtypes. **Cancer Immunol Res**. 2019 Jun;7(6):923-938. doi: 10.1158/2326-6066.CIR-18-0758.

Dr. med. dent. Jana Morawietz

Status: Completed

Role: Co-supervisor/mentor

Supervisor in the sense of the RpromO: Prof. Dr. med. Arndt Hartmann

Final grade: Magna cum laude

Publications: German monograph

Dr. med. Annalena Branz

Status: Completed

Role: Supervisor within the meaning of the RpromO

Supervisor in the sense of the RpromO: PD Dr. Dr. Markus Eckstein

Final grade: Magna cum laude

Publications: *Branz A*, Matek C, Lange F, Bahlinger V, Klümper N, Hölzel M, Strissel PL, Strick R, Sikic D, Wach S, Taubert H, Wullich B, Hartmann A, Seliger B, *Eckstein M*. HLA-G expression associates with immune evasion muscle-invasive urothelial cancer and drives prognostic relevance. **Front Immunol**. 2024 Oct 14;15:1478196. doi: 10.3389/fimmu.2024.1478196.

Fabienne Lange

Status: Review process, doctorate as "Dr. med."

Role: Supervisor within the meaning of the RpromO

Supervisor in the sense of the RpromO: PD Dr. Dr. Markus Eckstein

Final grade: -

Publications: *Lange F*, Geppert CI, Bahlinger V, Bertz S, Stöhr R, Sikic D, Taubert H, Wach S, Wullich B, Hartmann A, *Eckstein M*. Digital volumetric assessment of CIS and tumor mass complements



conventional histopathological assessment in muscle- invasive urothelial bladder cancer. **Virchows Arch.** 2025 Apr;486(4):769-779. doi: 10.1007/s00428-024-03875-9.

Laura Gloßner

Status: Doctoral thesis, doctorate as "Dr. med."

Role: Supervisor within the meaning of the RpromO

Supervisor in the sense of the RpromO: PD Dr. Dr. Markus Eckstein

Final grade: -

Publications: *Glossner L**, *Eckstein M**, Mark C, Beckmann MW, Hartmann A, Strissel PL, Strick R. Tumor clusters with divergent inflammation and human retroelement expression determine the clinical outcome of patients with serous ovarian cancer. **Mol Oncol.** 2025 Jun 10. doi: 10.1002/1878-0261.70067. *contributed equally

Laura Landgraf

Status: Doctoral thesis, doctorate as "Dr. med."

Role: Supervisor within the meaning of the RpromO

Supervisor in the sense of the RpromO: PD Dr. Dr. Markus Eckstein

Final grade: -

Publications: Erlmeier F, Klümper N, *Landgraf L*, Strissel PL, Strick R, Sikic D, Taubert H, Wach S, Geppert CI, Bahlinger V, Breyer J, Ritter M, Bolenz C, Roghmann F, Erben P, Schwamborn K, Wirtz RM, Horn T, Wullich B, Hölzel M, Hartmann A, Gschwend JE, Weichert W, *Eckstein M*. Spatial Immune phenotypes of Distant Metastases but not Matched Primary Urothelial Carcinomas Predict Response to Immune Checkpoint Inhibition. **Eur Urol.** 2023 Feb;83(2):133-142. doi: 10.1016/j.eururo.2022.10.020.

Noemi Lause

Status: Doctoral thesis, doctorate as "Dr. med. dent."

Role: Supervisor within the meaning of the RpromO

Supervisor in the sense of the RpromO: PD Dr. Dr. Markus Eckstein

Final grade: -

Publications: -

Renata Dubrovskaja

Status: Doctoral thesis, doctorate as "Dr. med."

Role: Co-supervisor or mentor

Supervisor in the sense of the RpromO: Prof. Dr. Bernd Wullich

Final grade: -

Publications: -

Nishaat Shaikh

Status: ongoing project phase, PhD doctorate to "Dr. rer. biol. hum"

Role: Supervisor within the meaning of the RpromO

Supervisor in the sense of the RpromO: PD Dr. Dr. Markus Eckstein

Final grade: -

Publications: Pending

Mohamed Abdrabbou

Status: ongoing project phase, PhD doctorate to "Dr. rer. biol. hum"

Role: Supervisor within the meaning of the RpromO

Supervisor in the sense of the RpromO: PD Dr. Dr. Markus Eckstein

Final grade: -

Publications: Pending



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