



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

*16.03.1990, Berlin, Germany

Contact Information

Address: Institute of Pathology, Universitätsklinikum Erlangen & FAU Erlangen-Nürnberg,
Krankenhausstraße 8-10, 91054 Erlangen, Germany
Email: markus.eckstein@uk-erlangen.de
Phone: +49 9131 8547792
ORCID: 0000-0001-5418-3349

Current Position

Attending 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> (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

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)
2023	<u>Board Certification</u> for Pathology and Molecular Pathology, Bayerische Landesärztekammer, Munich
Since 2023	<u>Section head</u> of the <u>central clinical trial and study unit</u> of the Institute of Pathology & <u>routine diagnostics laboratory</u>
Since 04/2023	<u>Attending Physician</u> , Institute of Pathology, Universitätsklinikum Erlangen (Director: Prof. Dr. Arndt Hartmann)

Other Commitments

2019 – 2023	Associate member patient advocacy and patient information working group of the European Society of Urology (EAU)
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)

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

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 ([DGP](#)), International Academy of Pathology ([IAP](#))
 2017 European Association of Urology ([EAU](#))
 2019 German Association of Targeted and Immune Therapy ([DGFIT](#))

Research Focus

Translational tumor immunology (with focus on urothelial malignancies and head and neck squamous cell carcinoma).
 Spatial transcriptomics and single cell spatial techniques in cancer research.
 Bioinformatical data analysis and data visualization including artificial intelligence.
 Deep spatial tissue phenotyping with multiparametric spatial single cell analysis methodologies.

Major Scientific Awards

- 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: Price of the German Society of Targeted and Immunotherapy (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): 30; i10-index 107 (google scholar). Web of Science: H-Score 27.

Current and Ppast Funding:

Funded Project	Funding Agency/Company	Funding Sum
German Biomarker Substudy of the Phase III NIAGARA Trial (2021-2025) 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	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	97.500,00 Euro
Validation of a checkpoint molecular gene expression typer in locally advanced bladder cancer PI: Markus Eckstein	Cepheid	33.452,39 Euro
Checkrad-CD8 Trial Pathology representative 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	Janssen Research & Development, LLC	403.000,00 Euro



<p>stages of urothelial bladder cancer. (2022-2025)</p> <p>PI: Dr. Markus Eckstein</p>		
<p>HANCOCK – Establishment of a multidimensional Head and Neck Cancer Dataset (2022-2024)</p> <p>PIs: Prof. Andreas Kist, Dr. Markus Eckstein, PD Dr. Antoniu-Oreste Gostian</p>	BMBF	<p>Total Funding: 270.000,00 Euro</p> <p>Own Funding: 56.000,00 Euro</p>
<p>Deciphering the role of TROP2 and its interplay with NECTIN-4 and Her2neu expression in muscle-invasive urothelial cancer of the bladder</p> <p>PIs: Dr. Markus Eckstein</p>	Gilead	380.000,00 Euro
<p>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)</p> <p>PI: Dr. Markus Eckstein</p>	Bayerisches Zentrum für Krebsforschung (BZKF)	100.000,00 Euro
<p>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)</p> <p>Rotation Salary to Dr. Markus Eckstein</p>	IZKF - FAU-Erlangen-Nürnberg	48.750,00 Euro
<p>Translational spatial tumor immunobiology of urothelial cancer. (2022-2023)</p> <p>PI: Dr. Markus Eckstein</p>	IZKF - FAU-Erlangen-Nürnberg	59.850,00 Euro
<p>NSCLC PREDICT – Predicting Immunotherapy Responses of NSCLC Patients using Deep Learning (2022-2024)</p> <p>PI: PD Dr. Markus Eckstein</p>	Owkin	138.809,00
<p>D41: Ferroptosis and phospholipid metabolism for chemo- and immunotherapy sensitization in urothelial cancer (2023-2026)</p> <p>PIs: Dr. Markus Eckstein & Prof. Felix Engel</p>	IZKF - FAU-Erlangen-Nürnberg	<p>Total Funding: 549.600,00 Euro</p> <p>Own Funding: 267.300 Euro</p>



<p>MOSAIC-Study: Comprehensive Spatial Multi-Omics Atlas of Cancer (2023-2030)</p> <p>PIs: Dr. Markus Eckstein & PD Dr. Ramona Erber</p>	Owkin	<p>Total Study Funding: 70.000.000,00 Euro</p> <p>Own Funding: 968.965,00 Euro</p>
<p>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</p>	Bavarian Cancer Research Center (BZKF)	99.774,57 Euro
<p>EKFS Exzellenzstipendium - Deciphering immunotherapy resistance mechanisms in locally advanced and metastatic urothelial carcinoma (05/2024-04/2026).</p> <p>PI: Dr. Markus Eckstein</p>	Else Kröner-Fresenius-Stiftung	350.000,00 Euro
<p>An Investigation of Mechanisms of Response and Resistance to Enfortumab Vedotin in Urothelial Cancer (2024-2027)</p> <p>PIs: Dr. Markus Eckstein, Dr. Niklas Klümper, Dr. Joshua Meeks</p>	United States Department of Defense	<p>Total ~ 1.0 Mio Euro</p> <p>Own Funding: 268.000,00 Euro</p>
<p>Decode the Antibody-Drug Conjugate Surfaceome in Metastatic Urothelial Cancer (DECODE-ADC)</p> <p>PIs: Dr. Markus Eckstein, Dr. Niklas Klümper, Prof. Christoph Kuppe</p>	Wilhelm Sander Stiftung	197.125,00 Euro
<p>Predictive Value of NECTIN-4 amplifications in patients with metastatic NSCLC, breast cancer and urothelial cancer treated with BT8009 and BT5528 (2024-2025)</p> <p>PI: PD Dr. Markus Eckstein</p>	BicycleTX	45.041,52 Euro
<p>Deep Learning to predict long-term survivors with glioblastomas (2024-2025)</p> <p>PI: PD Dr. Markus Eckstein</p>	Owkin	46.895,00 Euro
<p>Establishing a miRNA signature for prognostication and therapy choices in urothelial cancer of the bladder. (2024-2027)</p> <p>PI: Prof. Kerstin Junker (UKS) Co-PI: PD Dr. Markus Eckstein (UKER)</p>	Deutsche Krebshilfe	<p>Total: 321.825,00 Euro</p> <p>Own Funding: 78.300,00 Euro</p>
<p>Immunological risk stratification of patients with resectable</p>	Deutsche Krebshilfe	256.615,00 Euro



muscle-invasive urothelial bladder cancer. (2025-2028) PI: PD Dr. Markus Eckstein Co-PI: Dr. Dr. Christian Matek		
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 1-3)	53.371,50 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: **Pathologist**. Assessment of gastrointestinal biopsies (reference assessment of CED scores).
- DUCORA-Trial:**
Function: **Pathologist**. Assessment of neuroendocrine lung cancer samples (reference pathology)
- CASTLE-Trial:**
Function: Pathologist. Tissue immune monitoring of responses to anti CD-19 CAR T-cell therapies in patients with chronic inflammatory disorders