Jan Grimm, MD PhD
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EDUCATIONAL BACKGROUND

MD (Medicine) University of Hamburg	1996
PhD (Radiology) University of Schleswig-Holstein	2005

RESEARCH EXPERIENCE

Intern University of Hamburg Bone Marrow Transplantation Hematology/Oncology Department	1995-1997
Resident University of Kiel Department of Radiology	1997-2001
Research Fellow Harvard Medical School Massachusetts General Hospital Center for Molecular Imaging Research Laboratory of Ralph Weissleder	2002-2003
Research Fellow Memorial Sloan Kettering Cancer Center Molecular Imaging Service Department of Radiology Laboratory of Hedvig Hricak	2006-2009
Clinical Fellow Memorial Sloan Kettering Cancer Center Body Imaging Service Department of Radiology Laboratory of Hedvig Hricak	2006-2007
Resident Memorial Sloan Kettering Cancer Center Molecular Imaging Service Department of Radiology Laboratory of Hedvig Hricak	2007-2009

PROFESSIONAL POSITIONS & EMPLOYMENT

Instructor Department of Radiology Massachusetts General Hospital Harvard Medical School Boston, MA 02114	01/2004- 06/2006
Assistant Member Molecular Pharmacology/Chemical Biology Program Memorial Sloan Kettering Cancer Center New York, NY 10065	07/2009- 01/2016
Assistant Attending Radiologist Department of Radiology Memorial Hospital for Cancer and Allied Diseases New York, NY 10065	07/2009- 01/2016
Lab Head Molecular Pharmacology Program Memorial Sloan Kettering Cancer Center New York, NY 10065	07/2009- Present
Assistant Professor Gerstner Sloan Kettering Graduate School of Biomedical Sciences Memorial Sloan Kettering Cancer Center New York, NY 10065	07/2009- Present
Assistant Professor of Radiology Department of Radiology Weill Medical College of Cornell University New York, NY 10065	08/2009- Present
Assistant Professor of Pharmacology Department of Pharmacology Weill Medical College of Cornell University New York, NY 10065	08/2014- 04/2016
Associate Member Molecular Pharmacology Program Memorial Sloan Kettering Cancer Center New York, NY 10065	01/2016- Present
Associate Attending Radiologist Department of Radiology Memorial Hospital for Cancer and Allied Diseases New York, NY 10065	01/2016- Present

Associate Professor of Pharmacology 04/2016- Present
Department of Pharmacology
Weill Medical College of Cornell University
New York, NY 10065

Visiting Professor 11/2016- Present
King's College
London WC2R 2LS, UK

RESEARCH SUPPORT

- **Current Research Support**:

Source	Philanthropic Funds
Amount	$8,000
Duration	07/01/2010 - 07/01/2020
Principal Investigator	Grimm
Your Role in Project	Principal Investigator
% Effort	0%

Source	NCI- 5 R01 CA183953-04
Amount	$328,738
Duration	01/01/2015 - 12/31/2019
Principal Investigator	Grimm
Your Role in Project	Principal Investigator
% Effort	25%

Source	NCI- 5 R01 CA215700-02
Amount	$368,489
Duration	03/01/2017 – 02/28/2022
Principal Investigator	Grimm
Your Role in Project	Principal Investigator
% Effort	20%

Source	NCI- 5 R01 CA212379-02- 1 percentile
Amount	$407,478
Duration	06/06/2017- 05/31/2019
Principal Investigator	Grimm
Your Role in Project	Principal Investigator
% Effort	25%

Source	NCI- 5 R01 CA218615-02- 9 percentile
Amount	$290,501
Duration	06/09/2017- 05/31/2022
Principal Investigator	Grimm
Your Role in Project	Principal Investigator
% Effort	30%

Source	Ludwig Center Basic and Translational- GC233567
Amount	$109,000
Duration	06/01/2018 – 05/31/2020
Principal Investigator	Grimm
Your Role in Project	Principal Investigator
% Effort	5%

Source	Targimmune- sponsored research
Amount	$195,000
Duration	02/01/2019 – 08/31/2020
Principal Investigator	Grimm
Your Role in Project	Principal Investigator

- **Collaborative Support:**

Source	Wade Thompson Society- Grant 89350
Amount	$200,000
Duration	08/01/2014 – 07/31/2019
Principal Investigator	Coleman
Your Role in Project	Co- Principal Investigator
% Effort	0%

- **Pending Research Support**:

Source	NCI- R01 CA237292 01
Amount	$499,999
Duration	04/01/2019 – 03/31/2024
Principal Investigator	Grimm
Your Role in Project	Principal Investigator

Source	Congressionally Directed Medical Research Programs
Amount	$200,000
Duration	09/30/2018 – 09/29/2021
Principal Investigator	Grimm
Your Role in Project	Principal Investigator

- **Completed Research Support**:

1.	Title: Development of novel imaging agents for prostate cancer Source: Gerstner Award, Louis V Gerstner Young Investigator Award Amount: $75,000 Dates: 01/01/2010- 12/31/2012 PI: Grimm Percent Effort: 15%

2.	Title: Molecular Imaging to assess tumor-associated macrophages with targeted nanoparticles Source: I4-A427, Starr Cancer Consortium Amount: $300,000 Dates: 07/01/2010- 06/30/2012 PI: Grimm Percent Effort: 15%
3.	Title: Multimodality theranostics of pancreas cancer (Y1) Source: ETC 28480, Experimental Therapeutics Center Amount: $140,000 Dates: 01/01/2011 - 12/31/2011 PI: Grimm Percent Effort: 15%
4.	Title: Positron Lymphography Source: Society of Nuclear Medicine & Molecular Imaging, Postdoctoral Molecular Imaging Scholar Award Amount: $30,000 Dates: 6/1/2011 – 5/31/2013 PI: Grimm Recipient: Thorek Percent Effort: 8%
5.	Title: Cerenkov-emission based nanosensors to detect biologic activities in vivo Source: 5 R01 EB014944-04, NIBIB Amount: $220,500 Dates: 4/1/2012 - 1/31/2017 PI: Grimm Percent Effort: 25%
6.	Title: A liposomal nanosensor to interrogate immediate radiation therapy response (Y1) Source: Nanotechnology Center Grant Amount: $50,000 Dates: 9/1/2012 – 8/31/2013 PI: Grimm Percent Effort: 0%
7.	Title: Prognosticating Nanoparticles for Molecular Imaging of Prostate Cancer Source: W81XWH-12-1-0509, Congressionally Directed Medical Res. Programs Amount: $225,000 Dates: 9/30/2012 - 9/29/2015 PI: Grimm Percent Effort: 7%
8.	Title: Clinically Approved Nanoparticles as environmental-responsive self reporting drug delivery system (Y1) Source: Project # 1212, Experimental Therapeutics Center Amount: $50,000 Dates: 1/1/2013 - 12/31/2013 PI: Grimm Percent Effort: 20%

9.	Title: Monitoring Single Dose Radiation Therapy with a Smart MRI Sensor Source: GC220388, Imaging and Radiation Sciences Program Seed Grant Amount: $100,000 Dates: 1/1/2013 - 12/31/2014 PI: Grimm Percent Effort: 0%
10.	Title: Multifunctional Nanomaterials for the Prevention of Radiotherapy's Side Effects and Childhood Cancers Source: Alex's Lemonade Stand Foundation, Young Investigator Award Amount: $50,000 Dates: 7/1/2013 – 6/30/2015 PI: Grimm Recipient: Kaittanis Percent Effort: 50%
11.	Title: Near infrared intraoperative imaging to identify tumor margins Source: GC221650, Molecularly Targeted Pre- / Intra-operative Imaging Amount: $80,000 Dates: 7/1/2013 - 6/30/2015 PI: Jan Grimm Percent Effort: 5%
12.	Title: Alpha-particle therapy by 225Actinium-labeled prostate kallikrein-specific antibody to eradicate advanced disease Source: Prostate Cancer Foundation, Steve Wynn-PCF Young Investigator Amount: $75,000 Dates: 7/15/2013 – 7/14/2016 PI: Grimm Recipient: Thorek Percent Effort: 50%
13.	Title: A liposomal nanosensor to interrogate immediate radiation therapy response (Y2) Source: Nanotechnology Center Grant, Nanotechnology Center Amount: $35,000 Dates: 9/1/2013 – 8/31/2014 PI: Grimm Percent Effort: 0%
14.	Title: Clinically Approved Nanoparticles as environmental-responsive self reporting drug delivery system (Y2) Source: Project # 1212, Experimental Therapeutics Center Amount: $180,000 Dates: 2/1/2014 - 02/28/2014 PI: Grimm Percent Effort: 20%
15.	Title: Towards The Chemotherapy-Free Treatment of Follicular Lymphoma Source: 5 R01 CA183876-02, NCI Amount: $270,495 Dates: 5/5/2014 - 4/30/2019 PI: Wendel Percent Effort: 5%

16.	Title: Overcoming Drug Resistance in Advanced Prostate Cancer with Multifunctional Nanosponges Source: Prostate Cancer Foundation, Young Investigator Award Amount: $75,000 Dates: 6/1/2014 – 5/31/2017 PI: Grimm Recipient: Kaittanis Percent Effort: 50%
17.	Title: Merging Prostate Cancer biology with targeted nanocarriers Source: GC223094, Center for Molecular Imaging and Nanotechnology Amount: $75,000 Dates: 7/1/2014 - 6/30/2016 PI: Grimm Percent Effort: 5%
18.	Title: Augmented nanocarrier therapy Source: GC225629, Center for Molecular Imaging and Nanotechnology Amount: $75,000 Dates: 7/1/2015 - 6/30/2016 PI: Grimm Percent Effort: 2.5%
19.	Title: Polymeric nanoparticles with imaging capability for therapeutic Source: R01EB019288, NIH Amount: $25,000 Dates: 7/1/2015 - 5/31/2016 PI: Perez Percent Effort: 5%

HONORS, AWARDS, PATENTS

Research Award, Dept. of radiology, University of Kiel	2001
Society of Molecular Imaging Young Investigator Travel Award	2004
NIBIB Edward Nagy New Investigator Award	2014

ACADEMIC SERVICE

Gerstner School Admission Committee	2011-2013
SKI Working Group	2015 - present
RSVP SKI Vision Committee	2017 – present

TEACHING

Gerstner School of Biomedical Sciences Topic: Molecular Imaging	2011 - 2014
Weill Cornell Medical College Topic: Introduction into Imaging	2014 - present
Radiology, MSKCC Topic: Molecular Imaging	2009 - present

PROFESSIONAL MEMBERSHIP AND OTHER SERVICES

Member- European Congress of Radiology (ECR)	1997
Committee Member- Deutsche Röntgengesellschaft (DRG)	1997
Member- World Molecular Imaging Congress (WMIC)	2002
Member- Radiological Society of North America (RSNA)	2005
Member- Society of Nuclear Medicine and Molecular Imaging (SNMMI)	2009
Member- American Association for Cancer Research (AACR)	2010
Member of the Board of Directors- Center for Molecular Imaging Innovation and Translation of the Society of Nuclear Medicine & Molecular Imaging	2010-2013
Program Chair (MI)- Society of Nuclear Medicine and Molecular Imaging (SNMMI)	2012-2015
Poster Chair- World Molecular Imaging Congress (WMIC)	2012-2015
Moderator- Society of Nuclear Medicine and Molecular Imaging (SNMMI)	2011- Present
Moderator- European Congress of Radiology (ECR)	2013- Present
Member of the Molecular Imaging Committee- Radiological Society of North America (RSNA)	2013- Present
Moderator- Radiological Society of North America (RSNA)	2014- Present
Member of the Program Committee- Radiological Society of North America (RSNA)	2014- Present
Vice Program Chair- World Molecular Imaging Congress (WMIC)	2016
Board of Directors- World Molecular Imaging Society (WMIS)	2016- Present
Program Chair- World Molecular Imaging Congress (WMIC)	2017
Executive Member- World Molecular Imaging Congress (WMIC)	2018
Member- The American Society for Clinical Investigation (ASCI)	2018

GRANT REVIEWS AND STUDY SECTIONS

NIH Study Sections

Special Emphasis Panel for PAR-08-055 “Cancer Prevention Research Small Grant Program”	2010-2011

Additional

Society of MSK	2014-2017
Experimental Therapeutics Center	2013

AD HOC REVIEWER

ZCA1 SRLB-F (C3) B - Nanotherapeutics in Cancer Research	2010
NCI Technical Evaluation Panel for PHS 2011-1 Novel Imaging Agents to Expand the Clinical Toolkit for Cancer Diagnosis, Staging, and Treatment.”	2010
Special Emphasis Panel, **ZRG1 SBIB Z-(03)**	2013

INVITED TALKS

Meetings and Conferences

Trends in Molecular Imaging. Workshop Molekulare Bildgebung. Jena, Germany	07/2006
Molecular Imaging in cancer research and beyond. 27th Blankenese Conference, Blankenese. Hamburg, Germany	05/2007
Molecular Imaging – Gate to the future. 2d Pelican Prostate Colloquium. Basingstoke, UK	05/2008
PET/CT – current and future clinical applications. European Congress of Radiology. Vienna, Austria	03/2009

Molecular Imaging in Prostate Cancer. German Cancer Foundation - Symposium on Novel tools for risk assessment and early detection of premalignant lesions and cancer. Bonn, Germany	05/2009
MR imaging with nanoparticles. Society of Nuclear Medicine Midwinter meeting. Albuquerque, NM	02/2010
Enzymatically activatable Imaging Agents. German Research Society Excellence-Academy. Aachen, Germany	04/2010
[Aktivierbare Kontrastmittel] Activatable imaging agents. Annual meeting of the German Roentgen Society. Berlin, Germany	05/2010
Nanoparticles in MR imaging. Nanotech Conference. Anaheim, CA	06/2010
Molecular Imaging in Breast Cancer. Annual meeting of the German Society for Senology. Hamburg, Germany	07/2010
Cerenkov luminescence imaging for the use of PET tracers in the intraoperative setting. 19th International Symposium on Radiopharmaceutical Sciences. Amsterdam, the Netherlands	08/2011
Faster than the speed of light. Seminar at Mt. Sinai. New York NY	12/2011
Intraoperative Imaging Using Radioactive Tracers. Annual Meeting of the Society for Nuclear Medicine and Molecular Imaging. Miami, FL	06/2012
New Applications in Molecular Imaging: A Summary. Annual Meeting of the Society for Nuclear Medicine and Molecular Imaging. Miami, FL	06/2012
New directions in Cerenkov imaging. Annual Meeting of the Society for Nuclear Medicine and Molecular Imaging. Miami, FL	06/2012
Novel tools on early detection of pancreatic cancer. German Cancer Aid Workshop on Early Detection of Pancreas Cancer. Bonn, Germany	07/2012
Applications for Cerenkov Imaging. World Molecular Imaging Congress. Dublin, Ireland	09/2012
Theranostics. Seminar at University of Schleswig Holstein, Department of Radiology. Kiel, Germany	10/2012
Cherenkov Imaging. 1st Wade Thompson Foundation Meeting on vascular photodynamic therapy, Weizmann Institute. Tel Aviv, Israel	11/2012
Faster than the Speed of Light. Seminar at University of Central Florida. Orlando, Florida	02/2013
Activatable theranostic systems. American Chemical Society (ACS). Savannah, Georgia	04/2013
Cerenkov Imaging. Perkin Elmer RGH meeting. Boston, MA	05/2013

Faster than the speed of light. Seminar at MIPS, Stanford University. Paolo Alto, CA	09/2013
Cerenkov Imaging. Seminar at Chinese Academy of Sciences, Intelligent Medical Research Center. Beijing China	10/2013
Cerenkov Imaging. Seminar at School of Life Sciences and Technology, Xidian University. Xian, China	10/2013
Cerenkov Imaging. Lecture at 9th Hangzhou International Molecular Imaging Conference; October 26, 2013, Hangzhou, China	10/2013
Novel tools for sentinel lymph node identification. Mid-winter meeting of the Society for Nuclear Medicine and Molecular Imaging. Palm Springs, CA	02/2014
Novel tools for molecular imaging and drug delivery. Seminar at University of Pennsylvania, Department of Bioengineering. Philadelphia, PA	03/2014
Faster than the speed of light – Cerenkov Imaging. ECI Advances in Optics Conference. Lake Tahoe, CA	06/2014
Cerenkov Imaging 2.0. Annual Meeting of the Society for Nuclear Medicine and Molecular Imaging. St. Louis, MO	06/2014
Novel Molecular Imaging Techniques in Evaluation of Malignancies: Cerenkov Imaging. Annual Meeting of the Society for Nuclear Medicine and Molecular Imaging. St. Louis, MO	06/2014
Theranostics with particles. Annual Meeting of the Society for Nuclear Medicine and Molecular Imaging. St. Louis, MS	06/2014
Cerenkov Imaging: Promises and Challenges. Annual Meeting of the Society for Nuclear Medicine and Molecular Imaging. St. Louis, MS	06/2014
Cerenkov-Emission Based Nanosensors to Detect Biologic Activities in vivo. NIBIB's Second Edward C. Nagy New Investigator Symposium. Bethesda, MD	07/2014
Theranostics with nanoparticles. Keynote lecture at the 10th Hangzhou International Molecular Imaging Conference. Hangzhou, China	09/2014
Faster than the speed of light – Cerenkov Imaging. Plenary lecture at Gwangju Hwasun optical imaging symposium. Gwangju, South Korea.	10/2014
PSMA Imaging. Invited lecture at the Technical University of Munich. Munich, Germany	10/2014
Cerenkov Imaging 2.0. Invited lecture at the Technical University of Munich. Munich, Germany	10/2014
Cerenkov-activated therapies. 3rd Wade Thompson Foundation Meeting on Vascular Photodynamic Therapy. Oxford University, Oxford, England	11/2014

Cerenkov Imaging. Cambridge University, Department of Radiology and Cancer UK. Cambridge UK	02/2015
Cerenkov Imaging – a new imaging modality, faster than the speed of light. Vienna University, Department of Radiology Grand Rounds. Vienna, Austria	02/2015
Theranostics with Nanoparticles. Lowy Cancer Research Centre at the University of New South Wales. Sydney, Australia	02/2015
Cerenkov – faster than the speed of light. European Congress of Radiology. Vienna, Austria	03/2015
Advanced Radiotracer Imaging. The Institute of Cancer Research. London, UK	03/2015
Cerenkov Imaging for surgical guidance. Workshop on Interventional Molecular Imaging. Leiden, Netherlands	04/2015
PET/MRI with non-FDG PET tracers. Annual Meeting of the Society for Nuclear Medicine and Molecular Imaging. Baltimore, MA	06/2015
Introduction to Cerenkov Imaging. Annual Meeting of the Society for Nuclear Medicine and Molecular Imaging, Baltimore, MA	06/2015
Imaging of lymph nodes. 11th Hangzhou International Molecular Imaging Conference. Hangzhou, China	09/2015
Cerenkov imaging and its implication for breast cancer imaging. European Society of Breast Imaging. London, UK	10/2015
Cerenkov Imaging. Annual meeting of the European Association for Nuclear Medicine. Hamburg, Germany	10/2015
Faster Than the Speed of Light – Cerenkov Imaging. University of Illinois at Chicago. Chicago, IL	11/2015
Cerenkov Imaging – faster than the speed of light. University Illinois at Chicago. Chicago, IL	11/2015
MI Using Radioactive Tracers. Radiological Society of North America. Chicago, IL	11/2015
MI Using Radioactive Tracers. Radiological Society of North America. Chicago, IL	12/2015
Advances in Clinical Optical Imaging. Radiological Society of North America. Chicago, IL	12/2015
Antibodies, Nanoparticles and Small Molecules for Diagnosis and Therapy in Oncology. European Molecular Imaging Meeting. Utrecht, NL	03/2016
Using suprarelativistic particles for biomedical imaging through Cerenkov luminescence. SPIEnTranslational Biophotonics. Houston, TX	05/2016
Using Radio Tracers Beyond Nuclear Imaging. Society of Nuclear Medicine and Molecular Imaging. San Diego, CA	06/2016

Faster than the speed of light - Cerenkov imaging. Oak Ridge National Laboratory. Oak Ridge, TN 07/2016

Cerenkov imaging. IMAGING 2020 – The future of precision medicine. Jackson Hole, WY 09/2016

Advanced pre- and intra-operative lymph node assessment with PET and Cerenkov imaging. European Society for Breast Imaging 2016 annual meeting. Paris, France. 09/2016

Faster than the speed of light - Cerenkov Imaging and its application. Annual meeting of the Japanese Society of Nuclear Medicine. Nagoya, Japan 11/2016

MI Using Radioactive Tracers. Radiological Society of North America. Chicago, IL 11/2016

Complimentary Imaging Probes. European Molecular Imaging Meeting 2017. Cologne, DE 04/2017

Cerenkov and Bioluminescence Imaging. European Molecular Imaging Meeting Summer School. Chania, NE 07/2017

Cerenkov Imaging. Radiation Research Society. Cancun, MEX 10/2017

Theranostics with Nanoparticles / Cerenkov Imaging. University of New South Wales, Sydney, AU 11/2017

MI Using Radioactive Tracers. Radiological Society of North America. Chicago, IL 11/2017

Optical Imaging of Radiotracers. SPIE Photonics West. San Francisco, CA 01/2018

Urgent Clinical Problems. EMIM. San Sebastian, Spain 03/2018

When Particles Meet – Radio-labeled Nanoparticles. WFNMB. Melbourne, AUS 04/2018

When particles Meet – utilizing the power of Cerenkov light with nanotechnology. Nanomedicine. Rome, IT 06/2018

Cerenkov Imaging. EANM. Düsseldorf, DE 10/2018

PUBLICATIONS

- **Published and In Press** *(* shared first authorship)*

1. **Grimm J**, Zeller W, Zander AR. Separation and characterization of mobilized and unmobilized peripheral blood progenitor cells by counterflow centrifugal elutriation. Exp Hematol. 1995; 23(6): 535-44.

2. Krueger W, Stockschlader M, Sobottka I, Betker R, De Wit M, Kroger N, **Grimm J**, Arland M, Fiedler W, Erttmann R, Zander AR. Antimycotic therapy with liposomal amphotericin-B for patients undergoing bone marrow or peripheral blood stem cell transplantation. Leuk Lymphoma. 1997; 24(5-6): 491-9.

3. Stockschlader M, Hassan HT, Krog C, Kruger W, Loliger C, Horstman M, Altnoder M, Clausen J, **Grimm J**, Kabisch H, Zander A. Long-term follow-up of leukemia patients after related cryopreserved allogeneic bone marrow transplantation. Br J Haematol. 1997; 96(2): 382-6.

4. Zander AR, Berger C, Kroger N, Stockshlader M, Kruger W, Horstmann M, **Grimm J**, Zeller W, Kabisch H, Erttmann R, Schonrock P, Kuse R, Braumann D, Illiger HJ, Fiedler W, de Witt M, Hossfeld KD, Weh HJ. High dose chemotherapy with busulfan, cyclophosphamide, and etoposide as conditioning regimen for allogeneic bone marrow transplantation for patients with acute myeloid leukemia in first complete remission. Clin Cancer Res. 1997; 3(12 Pt 2): 2671-5.

5. **Grimm J**, Zeller W, Zander AR. Soluble interleukin-2 receptor serum levels after allogeneic bone marrow transplantations as a marker for GVHD. Bone Marrow Transplant. 1998; 21(1): 29-32.

6. Muller-Hulsbeck S, **Grimm J**, Suwelack D, Heller M. Mechanical assistance for enhancement of in vitro effectiveness for hydrodynamic thrombectomy. Invest Radiol 1999; 34(11): 669-77.

7. Muller-Hulsbeck S, Bathe M**, Grimm J**, Heller M. Enhancement of in vitro effectiveness for hydrodynamic thrombectomy devices. Simultaneous high-pressure rt-PA application. Invest Radiol. 1999; 34(8): 536-42.

8. Muller-Hulsbeck S, Schwarzenberg H, Tschach T, **Grimm J**, Heller M. [In vitro comparison of a size 6F and 8F high-speed rotational catheter for mechanical thrombus fragmentation]. Rofo. 1999; 170(1):94-8.

9. Todriia TV, Drize NI, Chertkov IL, **Grimm J**, Zander A. [Telomerase activity in the mouse bone marrow and subpopulations of spleen colony-forming units]. Biull Eksp Biol Med. 1999; 127(3): 311-3.

10. **Grimm J**, Karger N, Lusse S, Winoto-Morbach S, Krisch B, Muller-Hulsbeck S, Heller M. Characterization of ultrasmall magnetite [correction of paramagnetic magnetite] particles as superparamagnetic contrast agents in MRI. Invest Radiol 2000; 35(9): 553-6.

11. Jahnke T, Brossmann J, Voshage G, Hilbert C, Muller-Hulsbeck S, **Grimm J**, Toellner D, Heller M. [Mid-term follow-up after placement of the new balloon-expendable VIP-stent into the iliac arteries]. Rofo. 2000; 172(4): 381-5.

12. Karger N, Biederer J, Lusse S, **Grimm J**, Steffens J, Heller M, Gluer C. Quantitation of renal perfusion using arterial spin labeling with FAIR- UFLARE. Magn Reson Imaging 2000; 18(6): 641-7.

13. Müller-Hülsbeck S, **Grimm J**, Jahnke T, Brossmann J, Hilbert C, Heller M. [First results after implantation of the new balloon-expanded Bridge-Stent into the iliac artery]. Rofo. 2000; 172(10): 836- 41.

14. Burklein D, Lochmuller E, Kuhn V, **Grimm J**, Barkmann R, Muller R, Eckstein F. Correlation of thoracic and lumbar vertebral failure loads with in situ vs. ex situ dual energy X-ray absorptiometry. J Biomech. 2001; 34(5): 579-87.

15. **Grimm J**, Mueller-Huelsbeck S, Mueller M, Egbers HJ, Brinkmann G, Heller M. Evaluation of hydroxyapatite implants in vertebral bodies and extremities by contrast-enhanced magnetic resonance imaging. Arch Orthop Trauma Surg. 2001; 121(3): 158-61.

16. **Grimm J**, Muller-Hulsbeck S, Jahnke T, Hilbert C, Brossmann J, Heller M. Randomized study to compare PTA alone versus PTA with Palmaz stent placement for femoropopliteal lesions. J Vasc Interv Radiol. 2001; 12(8): 935-42.

17. **Grimm J**, Muller-Hulsbeck S, Heller M. Comparison of the mechanical thrombectomy efficacy of the Amplatz thrombectomy device and the Cragg thrombolytic brush in vitro. Invest Radiol. 2001; 36(4): 204-9.

18. **Grimm J**, Muller-Hulsbeck S, Blume J, Biederer J, Heller M. [Comparison of biphasic spiral CT and MnDPDP-enhanced MRI in the detection and characterization of liver lesions]. Rofo. 2001; 173(3): 266-72.

19. Jahnke T, Link J, Muller-Hulsbeck S, **Grimm J**, Heller M, Brossman J. Treatment of infrapopliteal occlusive disease by high-speed rotational atherectomy: initial and mid-term results. J Vasc Interv Radiol. 2001; 12(2): 221-6.

20. Muhle C, Brossmann J, Biederer J, **Grimm J**, Mohr A, Heller M. [Value of kinematic MRI in the evaluation of patients with exacerbated pain in cervical spine motion compared with static MRI]. Rofo. 2001; 173(2): 126-32.

21. Muller-Hulsbeck S, **Grimm J**, Leidt J, Jahnke T, Heller M. Comparison of in vitro effectiveness of mechanical thrombectomy devices. J Vasc Interv Radiol. 2001; 12(10): 1185-91.

22. Müller-Hülsbeck S, Brossmann J, Jahnke T, **Grimm J**, Reuter M, Bewig B, Heller M. Mechanical thrombectomy of major and massive pulmonary embolism with use of the amplatz thrombectomy device. Invest Radiol. 2001; 36(6): 317-22.

23. Müller-Hülsbeck S, **Grimm J**, Jahnke T, Häselbarth G, Heller M. Flow patterns from metallic vascular endoprostheses: in vireo results. Eur Radiol 2001; 11: 893-901.

24. Priebe M, Paulsen F, Jahnke T, **Grimm J**, Heller M, Muller-Hulsbeck S. [Mechanical brush-catheter abrasion method for the isolation and culture of human umbilical vein endothelial cells. First in vitro results]. Rofo. 2001; 173(10): 955- 8.

25. Biederer J, Busse I, **Grimm J**, Reuter M, Muhle C, Freitag S, Heller M. [Sensitivity of MRI in detecting alveolar Infiltrates: Experimental studies]. Rofo. 2002; 174(8): 1033-9.

26. Biederer J, Reuter M, Both M, Muhle C, **Grimm J**, Graessner J, Heller M. Analysis of artefacts and detail resolution of lung MRI with breath-hold T1-weighted gradient-echo and T2-weighted fast spin-echo sequences with respiratory triggering. Eur Radiol. 2002; 12(2): 378-84.

27. Jahnke T, Voshage G, Muller-Hulsbeck S, **Grimm J**, Heller M, Brossmann J. Endovascular placement of self-expanding nitinol coil stents for the treatment of femoropopliteal obstructive disease. J Vasc Interv Radiol. 2002; 13(3): 257-66.

28. Muhle C, Brossmann J, Biederer J, Jahnke T, **Grimm J**, Heller M. [Alar ligaments: radiological aspects in the diagnosis of patients with whiplash injuries]. Rofo. 2002; 174(4): 416-22.

29. Muller-Hulsbeck S, Jahnke T, **Grimm J**, Behm C, Hilbert C, Frahm C, Biederer J, Brossmann J, Heller M. [Early results with a monorail-stent-balloon device for endovascular treatment of renal artery stenosis]. Rofo. 2002; 174(3): 335- 41.

30. Muller-Hulsbeck S, Wallu scheck KP, Priebe M, **Grimm J**, Cremer J, Heller M. Experience on endothelial cell adhesion on vascular stents and stent-grafts: first in vitro results. Invest Radiol. 2002; 37(6): 314-20.

31. Muller-Hulsbeck S, Jahnke T, Liess C, Glass C, Paulsen F, **Grimm J**, Heller M. In vitro comparison of four cerebral protection filters for preventing human plaque embolization during carotid interventions. J Endovasc Ther. 2002; 9(6): 793-802.

32. Muller-Hulsbeck S, **Grimm J**, Liess C, Hedderich J, Bergmeyer M, Heller M. Comparison and modification of two cerebral protection devices used for carotid angioplasty: in vitro experiment. Radiology. 2002; 225(1): 289-94.

33. Muller-Hulsbeck S, **Grimm J**, Leidt J, Heller M. In vitro effectiveness of mechanical thrombectomy devices for large vessel diameter and low-pressure fluid dynamic applications. J Vasc Interv Radiol. 2002; 13(8): 831-9.

34. Oudkerk M, Torres CG, Song B, Konig M, **Grimm J**, Fernandez-Cuadrado J, Op de Beeck B, Marquardt M, van Dijk P, de Groot JC. Characterization of liver lesions with mangafodipir trisodium-enhanced MR imaging: multicenter study comparing MR and dual-phase spiral CT. Radiology. 2002; 223(2): 517-24.

35. Both M, Jahnke T, Reinhold-Keller E, Reuter M, **Grimm J**, Biederer J, Brossmann J, Gross WL, Heller M, Mueller-Huelsbeck S. Percutaneous management of occlusive arterial disease associated with vasculitis: a single center experience. Cardiovasc Intervent Radiol. 2003; 26(1): 19-26.

36. **Grimm J**, Jahnke T, Muhle C, Heller M, Muller-Hulsbeck S. Influence of Thrombus Age on the Mechanical Thrombectomy Efficacy of the Amplatz Thrombectomy Device In Vitro. Cardiovasc Intervent Radiol 2003; 26(3): 265-8.

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membrane antigen cleavage of vitamin B9 stimulates oncogenic signaling through metabotropic glutamate receptors. J Exp Med. 2018 Jan 2;215(1):159-175.

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- **Submitted and Under Review** Journal Name should not be listed for these papers.
  (shared first authorship)*

1. Trujillo-Alonso V, Pratt EC, Zong H, Lara-Martinez A, Kaittanis C, Longo VA, Becker MW, **Grimm J**, Guzman ML. Oxidative Ferrotherapy for the Treatment of Acute Myeloid Leukemia. (under review Nature Nanaotechnol)

2. Das S, Pratt EC, Vyas K, Tusch D, **Grimm J**. Cerenkov fiberscope for intraoperative imaging in the clinic. (in preparation)

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4. Trujillo-Alonso V, Pratt EC, Zong H, Lara-Martinez A, Kaittanis C, Rabie MO, Longo VA, Becker MW, Roboz GJ, Grimm J, Guzman ML. FDA-approved ferumoxytol displays anti-leukaemia efficacy against cells with low ferroportin levels. (under review Nature Nanaotechnol)

- **Reviews and Commentaries**

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LABORATORY PERSONNEL

Current Members:

1. **Anuja Ogirala, BSC, Research Assistant Sr, 2008. PSMA as a clinical marker of prostate cancer.**
2. **Edwin C. Pratt, BA, Graduate Student, 2014. Theranostic nanoparticle.**
3. **Evan Stater, BA, Graduate Student, 2015. Nanoparticles as immunotherapeutic agents.**
4. **Qize Zhang, NE Student, 2016. Theranostic nanoparticles.**
5. **Emaad Khwaja, NE Agency Contingent, 2016. Cerenkov light from positive refractive index materials and metamaterials.**
6. **Hsiao Ting Hsu, Research Technician Sr, 2017. Tumor angiogenesis in the 3D microenvironment chips.**
7. **Ryo Tamura, PhD, Research Scholar, 2017. Development of Cerenkov Radiation Activatable Probes.**
8. **Magdalena Skubal, PhD, Research Scholar, 2017. PSMA Biology in Tumor Neovasculature.**
9. **Ali Sonay, PhD, Research Scholar, 2018.**

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14. **Alexandre Martin-Malburet, MD, Visiting Investigator, 2015.**
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16. **Achmed Turay, BSC, NE Student, 2017. Weill Cornell Medical College Student.**
17. **Camila Longo Machado, PhD, Postdoctoral Fellow, 2017. Scientific Researcher III, ICESP**
18. **Sudeep Das, PhD, Research Scholar, 2018.**
19. **Katja Haedicke, PhD, Research Scholar, 2018. Application Specialist, iThera Medical GmbH.**
20. **Andrei Berezhnoi, Graduate Research Assistant, 2018.**

SIGNIFICANT PUBLICATIONS

1. **Pratt EC, Shaffer TM, Zhang Q, Drain CM, Grimm J. Nanoparticles as multimodal photon transducers of ionizing radiation. Nat Nanotechnol. 2018 May;13(5):418-426. doi: 10.1038/s41565-018-0086-2.**
   Here we describe for the first time in detail the interaction of nanoparticles with radioactivity. In biomedical imaging, nanoparticles combined with radionuclides are frequently used for imaging or therapy. In these applications, the nanoparticle is often viewed as a carrier inert to ionizing radiation from the radionuclide. However, certain phenomena such as enhanced nanoparticle luminescence and generation of reactive oxygen species cannot be completely explained by Cerenkov luminescence interactions with nanoparticles. We demonstrate that β-scintillation contributes appre- ciably to excitation and reactivity in certain nanoparticle systems, and that excitation by radionuclides of nanoparticles com-posed of large atomic number atoms generates X-rays, enabling multiplexed imaging. These findings demonstrate practical optical imaging and therapy using radionuclides with emission energies below the Cerenkov threshold, thereby expanding the list of applicable radionuclides.

2. **Kaittanis C, Andreou C, Hieronymus H, Mao N, Foss CA, Eiber M, Weirich G, Panchal P, Gopalan A, Zurita J, Achilefu S, Chiosis G, Ponomarev V, Schwaiger M, Carver BS, Pomper MG, Grimm J. Prostate-specific membrane antigen cleavage of vitamin B9 stimulates oncogenic signaling through metabotropic glutamate receptors. J Exp Med. 2018 Jan 2;215(1):159-175.**
   Here we describe for the first time an as of yet unknown biological function of PSMA, whose exact role in prostate cancer was so far unknown. We demonstrate that PSMA initiates in prostate cancer signaling upstream of PI3K via the metabotropic glutamate receptor (mGluR). PSMA's carboxypeptidase activity releases glutamate from vitamin B9 and other glutamated substrates, which activate mGluR I. Activated mGluR I subsequently induce activation of PI3K through phosphorylation of p110β independent of PTEN loss. The p110β isoform of PI3K plays a particularly important role in the pathogenesis of prostate cancer, but the origin of its activation was so far unknown. PSMA expression correlated with PI3K–Akt signaling in cells, animal models, and patients. Inhibition of PSMA in preclinical models abrogated PI3K signaling and promoted tumor regression. Our data present a novel oncogenic signaling role of PSMA that can be exploited for therapy and interrogated with imaging.

3. **Kaittanis C, Shaffer TM, Ogirala A, Santra S, Perez JM, Chiosis G, Li Y, Josephson L, Grimm J. Environment-responsive nanophores for therapy and treatment monitoring via molecular MRI quenching. Nat Commun. 2014 Mar 4;5:3384.**
   This extensive work describes the use of a clinical approved iron oxide nanoparticle (Feraheme) as vehicle to improve drug delivery to tumors. We found a facile way to load the particles with several drugs and to image the drug delivery in vivo noninvasively with MRI. We shed light on the physical background of this phenomenon (drug loading and imaging) and utilize it in vivo to treat various tumors, achieving a better outcome at the same drug combination than compared to free drugs at the same dose. The additional imaging makes this a true theranostic approach. This work is the basis for ongoing work in this area and is in the process of being patented (patent filed and pending).

4. **Thorek DL, Ogirala A, Beattie BJ, Grimm J. Quantitative imaging of disease signatures through radioactive decay signal conversion. Nat Medicine 2013; (19):1345-50.**
   This paper describes for the first time the use of radioactivity to develop real switchable probes based on Cerenkov light from radiotracers. It contains the basic exploration of the activation of fluorochromes with Cerenkov light (Secondary Cerenkov Emission Fluorescence Imaging = SCIFI), demonstrates advantages of this method (a higher signal-to noise ratio; better resolution and quantitative imaging) and provides two in vivo studies highlighting the advantages of the system. We demonstrate also the non-invasive and directly quantitative measurement of biologically relevant enzymatic activity (MMP-2) in vivo. It is the basis for our more recent work in Nature Nanotechnology and ongoing work.

5. **Ruggiero A, Holland JP, Lewis JS, Grimm J. Cerenkov luminescence imaging of medical isotopes. J Nucl Med. 2010; 51(7):1123-30.**
   This paper describes as one of the first studies in the literature the use of Cerenkov light from medical isotopes for the optical imaging of radiotracers, exemplified on explorations of phantoms to verify the phenomenon as well as extensive in vivo studies, tightly correlating PET imaging with the results from Cerenkov imaging. It laid the ground for our following papers on this phenomenon. This was one of the first papers on medical Cerenkov imaging overall.

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