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Research Interests

Dr. Dr. Daniel J. Smit (MD/PhD) is a research group leader and physician that currently works at the Institute of Tumor Biology, University Medical Center Hamburg-Eppendorf. Daniel does research in Cancer Research, Liquid Biopsy, Molecular Biology, Biochemistry and Signal Transduction.

Academic career

04/2021 - 05/2023: Doctor of Philosophy (PhD) (magna cum laude, with great distinction)

05/2018 - 01/2022: Doctor of Medicine (MD) (summa cum laude, with the highest distinction)

Grants

2022 - 2024:

Funding from Hamburger Krebsgesellschaft:

Functional analysis of AKT and NCKAP1 for liver metastasis of colorectal cancer cells

Funding amount: 55.300€

2022 - 2024:

Funding from Erich und Gertrud Roggenbuck-Stiftung:

Identifying the functional role of the PI3K/AKT/mTOR signaling pathway in circulating tumor cells for colorectal cancer metastasis

Funding amount: 106.000€

Prizes

European Liquid Biopsy Society Young Investigator Award

Smit, Daniel J. (Recipient)

Department of Tumor Biology

Details

Awarded date 03.05.2023

Granting Organisations European Liquid Biopsy Society, Germany

event 13th International Symposium on Minimal Residual Cancer

Teacher of the year (2023)

Smit, Daniel J. (Recipient)

Department of Tumor Biology

Details

Awarded date 15.06.2023

Granting Organisations Dekanat, Prodekanat für Lehre, Universitätsklinikum Hamburg-Eppendorf

Conference abstracts

- Tian, L.; Velasquez, L.; Popova, N.; Smit, D.J.; Huber, S.; Jücker, M. Functional roles of the AKT isoforms in hepatocellular carcinoma metabolism. Abstract submission for the 26th Meeting on Signal Transduction on 06.11.2023, Weimar, Germany.
- Pantel, K.; Andersen, C.L.; Schuurung, E.; Malats, N.; Heitzer, E.; Vat, L.; Rogers, M.; Bertini, R.; Kiernan, E.; Chin, E.; Barrett, C.; Kapp, J.; Thomas, M.; Gerling, M.; Reck, M.; Löhr, M.; Hofman, P.; Hiltermann, J.; Alix-Panabières, C.; Smit, D.J.; Bolisetty, M.; Karasarides, M. GUIDE.MRD: A consortium guiding multi-modal therapies against minimal residual disease by liquid biopsy to assess implementation of circulating tumor DNA in clinical practice to improve patient outcomes. Abstract submission for the European Society for Medical Oncology (ESMO) Congress 2023, 20.10.2023, Madrid, Spain
- Haider, M.T.; Zarrer, J.; Ridlmaier, N.; Preuer, R.; Smit, D.J.; Saito, H.; Hesse, E.; Taipaleenmäki, H. IL-17A supports osteoblasts to become cancer-associated fibroblasts in breast cancer bone metastases. Abstract submission for the American Society for Bone and Mineral Research (ASBMR) 2023 on 13.10.2023, Vancouver, British Columbia, Canada.
- Deitert, B.; Kött, J.; Geidel, G.; Roeper, C.; Andreas, A.; Stadt, J.-C.; Heidrich, I.; Smit, D.J.; Keller, L.; Pantel, K., Gebhardt, C. Die Expression von NGFR auf extrazellulären Vesikeln rekapituliert die Inflammations-induzierte Dedifferenzierung des malignen Melanoms in vitro. Abstract submission for the 33rd German Skin Cancer Congress (ADO 2023) from 06.09.2023-09.09.2023, Hamburg, Germany.
- Zimmermann, N.; Kött, J.; Rüniger, A.; Heidrich, I.; Geidel, G.; Smit, D.J.; Reschke, R.; Zell, T., Gebhardt, C. Eine Übersicht der prädiktiven Eigenschaften etablierter Geneexpressionsprofile des primären kutanen Melanoms hinsichtlich des Wächterlymphknotenbefalls und der mögliche Einfluss auf die klinische Praxis. Abstract submission for the 33rd German Skin Cancer Congress (ADO 2023) from 06.09.2023-09.09.2023, Hamburg, Germany.
- Smit, D.J.; Pereira-Veiga, T.; Horn, M.; Voß, H.; Zhuang, R.; Haider, M.-T.; Iskhakova, M.; Lindemann, B.; Cayrefourcq, L.; Wikman, H.; Schlüter, H., Schumacher, U.; Pantel, K.; Alix-Panabières, C.; Jücker, M. Targeting the AKT/mTOR pathway attenuates the metastatic potential of colorectal carcinoma CTCs in a murine xenotransplantation model and alters metabolic pathways. Abstract submission for the Wilsede Meeting 2023 on 24.06.2023, Wilsede, Germany.
- Haider, M.T.; Zarrer, J.; Ridlmaier, N.; Preuer, R.; Smit, D.J.; Saito, H.; Hesse, E.; Taipaleenmäki, H. IL-17A supports osteoblasts to become cancer-associated fibroblasts in breast cancer bone metastases. Abstract submission for the Cancer & Bone Society (CABS) meeting 2023 on 07.06.2023, St. Louis, Missouri, United States of America.
- Deitert, B.; Roeper, C.; Kött, J.; Geidel, G.; Andreas, A.; Stadler, J.; Smit, D.J.; Heidrich, I.; Gebhardt, C.; Pantel, K.; Keller, L. Exomal NGFR witnesses the dynamics of TNF-alpha-induced dedifferentiation in melanoma cells. Abstract submission for the 13th International Symposium on Minimal Residual Cancer on 02.05.2023, Hamburg, Germany.
- Zell, T.; Kött, J.; Heidrich, I.; Zimmermann, N.; Geidel, G.; Smit, D.J.; Pantel, K.; Schneider, S.W.; Gebhardt, C. D-Dimers as a liquid prognostic biomarker for Melanoma patients treated with Immune-Checkpoint inhibition. Abstract submission for the 13th International Symposium on Minimal Residual Cancer on 02.05.2023, Hamburg, Germany.
- Schneider, S.; Heidrich, I.; Kött, J.; Smit, D.J.; Geidel, G.; Schneider, S.W.; Pantel, K.; Gebhardt, C. Detection of circulating tumor cells (CTCs) in patients with metastatic uveal melanoma - a pilot study. Abstract submission for the 13th International Symposium on Minimal Residual Cancer on 02.05.2023, Hamburg, Germany.
- Smit, D.J.; Pereira-Veiga, T.; Horn, M.; Voß, H.; Zhuang, R.; Haider, M.-T.; Iskhakova, M.; Lindemann, B.; Cayrefourcq, L.; Wikman, H.; Schlüter, H., Schumacher, U.; Pantel, K.; Alix-Panabières, C.; Jücker, M. Targeting the AKT/mTOR pathway attenuates the metastatic potential of colorectal carcinoma CTCs in a murine xenotransplantation model and alters metabolic pathways. Abstract submission for the 13th International Symposium on Minimal Residual Cancer on 02.05.2023, Hamburg, Germany.
- Heidrich, I.; Kött, J.; Geidel, G.; Rüniger, A.; Smit, D.J.; Greinert, R.; Mohr, P.; Schneider, S.; Pantel, K.; Gebhardt, C. How to Biobank - The (LiquiMeL -) Biobank of the Fleur Hiege-Center for Skin Cancer Research at the University Medical Center Hamburg-Eppendorf (UKE) presents itself. Abstract submission for the 49th annual meeting of the Arbeitsgemeinschaft Dermatologische Forschung on 22.02.2023, Innsbruck, Austria.
- Smit, D.J.; Horn, S.; Yigit, G.; Pogenberg, V.; Pantel, K., Jücker, M. Functional characterization of the rare PIK3CA C2 domain E418K and E453K mutations detected in breast cancer CTCs and metastatic cells. Abstract submission for the 25th Meeting on Signal Transduction on 02.11.2022, Weimar, Germany.
- Smit, D.J.; Horn, S.; Yigit, G.; Pogenberg, V.; Pantel, K., Jücker, M. Characterization of rare mutations within the C2 domain of the PIK3CA gene in breast cancer CTCs. Abstract submission for the XIV. UCCH Research Retreat on 19.08.2022, Bad Bramstedt, Germany.
- Gerloff, R.; Weiß, A.; Lammert, A.; Schermuly, R.; Smit, D.J.; Jücker, M.; Giehl, K. Characterization of AKT isoform-specific signaling in lung cancer cells. Abstract submission for the 23rd Meeting on Signal Transduction "Trends in Cancer and Infection" on 04.11.2019, Weimar, Germany.
- Smit, D.J.; Alix-Panabières, C., Pantel, K., Jücker, M. Dual targeting of PI3K/AKT/mTOR signaling pathway leads to synergistic effects in circulating tumor cells. Abstract submission for the XI. UCCH Research Retreat on 30.08.2019, Jesteburg, Germany.

Research outputs

Sentinel lymph node risk prognostication in primary cutaneous melanoma through tissue-based profiling, potentially redefining the need for sentinel lymph node biopsy

Kött, J., Zimmermann, N., Zell, T., Rüniger, A., Heidrich, I., Geidel, G., Smit, D. J., Hansen, I., Abeck, F., Schadendorf, D., Eggermont, A., Puig, S., Hauschild, A. & Gebhardt, C., 05.2024, In: EUR J CANCER. 202, 113989.

High Serum Levels of CCL20 Are Associated with Recurrence and Unfavorable Overall Survival in Advanced Melanoma Patients Receiving Immunotherapy

Kött, J., Hoehne, I., Heidrich, I., Zimmermann, N., Reese, K-L., Zell, T., Geidel, G., Rüniger, A. M., Schneider, S., Pantel, K., Smit, D. J. & Gebhardt, C., 29.04.2024, In: *CANCERS*. 16, 9, 1737.

Circulating tumor cells as liquid biopsy markers in cancer patients

Smit, D. J. & Pantel, K., 04.2024, In: *MOL ASPECTS MED*. 96, p. 101258 101258.

K-Ras(V12) differentially affects the three Akt isoforms in lung and pancreatic carcinoma cells and upregulates E-cadherin and NCAM via Akt3

Geißert, R., Lammert, A., Wirth, S., Hönig, R., Lohfink, D., Unger, M., Pek, D., Schlüter, K., Scheftschik, T., Smit, D. J., Jücker, M., Menke, A. & Giehl, K., 30.01.2024, In: *CELL COMMUN SIGNAL*. 22, 1, p. 85

Liquid Biopsy – Ein neues diagnostisches Konzept in der Onkologie

Heidrich, I., Roeper, C. M. T., Rautmann, C., Pantel, K. & Smit, D. J., 01.2024, In: *LARYNGO RHINO OTOL*. 103, 1, p. 40-46 7 p.

Impact of AKT1 on cell invasion and radiosensitivity in a triple negative breast cancer cell line developing brain metastasis

Kempska, J., Oliveira-Ferrer, L., Grottko, A., Qi, M., Alawi, M., Meyer, F., Borgmann, K., Hamester, F., Eylmann, K., Rossberg, M., Smit, D. J., Jücker, M., Laakmann, E., Witzel, I., Schmalfeldt, B., Müller, V. & Legler, K., 06.07.2023, In: *FRONT ONCOL*. 13, p. 1129682 1129682.

„Liquid biopsy“ – schon reif für Therapieentscheidungen?

Roeper, C., Hoehne, I., Schlepper, N., Koch, C., Pantel, K. & Smit, D. J., 06.05.2023, In: *best practice onkologie*. 18, 5, p. 194 - 202

Liquid Biopsy – Ein neues diagnostisches Konzept in der Onkologie

Heidrich, I., Roeper, C. M. T., Rautmann, C., Pantel, K. & Smit, D. J., 05.2023, In: *DEUT MED WOCHENSCHR*. 148, 10, p. 597-604 8 p.

The Role of PI3K/AKT/mTOR Signaling in Hepatocellular Carcinoma Metabolism

Tian, L-Y., Smit, D. J. & Jücker, M., 31.01.2023, In: *INT J MOL SCI*. 24, 3, 2652.

TIGIT blockade repolarizes AML-associated TIGIT+ M2 macrophages to an M1 phenotype and increases CD47-mediated phagocytosis

Braunack, F., Fischer, B., Witt, M., Muschhammer, J., Oelrich, J., da Costa Avelar, P. H., Tsoka, S., Bullinger, L., Seubert, E., Smit, D. J., Bokemeyer, C., Ackermann, C., Wellbrock, J., Haag, F. & Fiedler, W., 12.2022, In: *J IMMUNOTHER CANCER*. 10, 12, e004794.

Combined Targeting of AKT and mTOR Inhibits Tumor Formation of EpCAM+ and CD90+ Human Hepatocellular Carcinoma Cells in an Orthotopic Mouse Model

Moustafa, M., Dähling, K-K., Günther, A., Riebandt, L., Smit, D. J., Riecken, K., Schröder, C., Zhuang, R., Krech, T., Krieger, M., Fehse, B., Izbicki, J., Fischer, L., Nashan, B., Li, J. & Jücker, M., 08.04.2022, In: *CANCERS*. 14, 8, 1882.

The role of sphingosine-1-phosphate in bone remodeling and osteoporosis

Grewe, J. M., Knapstein, P-R., Donat, A., Jiang, S., Smit, D. J., Xie, W. & Keller, J., 08.04.2022, In: *BONE RES*. 10, 1, 34.

MicroRNAs: Emerging Regulators of Metastatic Bone Disease in Breast Cancer

Haider, M-T., Smit, D. J. & Taipaleenmäki, H., 30.01.2022, In: *CANCERS*. 14, 3, 729.

AKT Isoforms as a Target in Cancer and Immunotherapy

Smit, D. J. & Jücker, M., 2022, *PI3K and AKT Isoforms in Immunity*. Dominguez-Villar, M. (ed.). 1 ed. Cham: Springer, p. 409-436 27 p. (Current Topics in Microbiology and Immunology; vol. 436).

High Serum Levels of Wnt Signaling Antagonist Dickkopf-Related Protein 1 Are Associated with Impaired Overall Survival and Recurrence in Esophageal Cancer Patients

Ramirez, J. G., Smit, D. J., Viol, F., Schrader, J., Ghadban, T., Pantel, K., Izbicki, J. R. & Reeh, M., 04.10.2021, In: *CANCERS*. 13, 19, 4980.

Circulating tumor cells as a promising target for individualized drug susceptibility tests in cancer therapy

Smit, D. J., Pantel, K. & Jücker, M., 06.2021, In: *BIOCHEM PHARMACOL*. 188, p. 114589

Combined Targeting of AKT and mTOR Synergistically Inhibits Formation of Primary Colorectal Carcinoma Tumouroids In Vitro: A 3D Tumour Model for Pre-therapeutic Drug Screening

Nörz, D., Mullins, C. S., Smit, D. J., Linnebacher, M., Hagel, G., Mirdogan, A., Siekiera, J., Ehm, P., Izbicki, J. R., Block, A., Thastrup, O. & Jücker, M., 05.2021, In: *ANTICANCER RES*. 41, 5, p. 2257-2275 19 p.

Interleukins as Mediators of the Tumor Cell-Bone Cell Crosstalk during the Initiation of Breast Cancer Bone Metastasis

Haider, M-T., Ridlmaier, N., Smit, D. J. & Taipaleenmäki, H., 12.03.2021, In: *INT J MOL SCI*. 22, 6, p. 2898

Knockdown of AKT3 Activates HER2 and DDR Kinases in Bone-Seeking Breast Cancer Cells, Promotes Metastasis In Vivo and Attenuates the TGF β /CTGF Axis

Hinz, N., Baranowsky, A., Horn, M., Kriegs, M., Sibbertsen, F., Smit, D. J., Clezardin, P., Lange, T., Schinke, T. & Jücker, M., 18.02.2021, In: *CELLS-BASEL*. 10, 2, 430.

Role of miRNAs in Breast Cancer-induced Bone Disease

Haider, M-T., Zarrer, J., Smit, D. J., Hesse, E. & Taipaleenmäki, H., 2021, In: *OSTEOLOGIE*. 30, 3, p. 211-221

Differential regulation of extracellular matrix proteins in three recurrent liver metastases of a single patient with colorectal cancer

Voß, H., Wurlitzer, M., Smit, D. J., Ewald, F., Alawi, M., Spohn, M., Indenbirken, D., Omid, M., David, K., Juhl, H., Simon, R., Sauter, G., Fischer, L., Izbicki, J. R., Molloy, M. P., Nashan, B., Schlüter, H. & Jücker, M., 12.2020, In: *CLIN EXP METASTAS*. 37, 6, p. 649-656 8 p.

High Sensitivity of Circulating Tumor Cells Derived from a Colorectal Cancer Patient for Dual Inhibition with AKT and mTOR Inhibitors

Smit, D. J., Cayrefourcq, L., Haider, M-T., Hinz, N., Pantel, K., Alix-Panabières, C. & Jücker, M., 20.09.2020, In: *CELLS-BASEL*. 9, 9

Characterization of circulating breast cancer cells with tumorigenic and metastatic capacity

Koch, C., Kuske, A., Joosse, S. A., Yigit, G., Sflomos, G., Thaler, S., Smit, D. J., Werner, S., Borgmann, K., Gärtner, S., Mossahebi Mohammadi, P., Battista, L., Cayrefourcq, L., Altmüller, J., Salinas-Riester, G., Raithatha, K., Zibat, A., Goy, Y., Ott, L., Bartkowiak, K., Tan, T. Z., Zhou, Q., Speicher, M. R., Müller, V., Gorges, T. M., Jücker, M., Thiery, J-P., Briskin, C., Riethdorf, S., Alix-Panabières, C. & Pantel, K., 07.09.2020, In: *EMBO MOL MED*. 12, 9, e11908.

Combined Targeting of AKT and mTOR Inhibits Proliferation of Human NF1-Associated Malignant Peripheral Nerve Sheath Tumour Cells In Vitro but not in a Xenograft Mouse Model In Vivo

Schulte, A., Ewald, F., Spyra, M., Smit, D. J., Jiang, W., Salamon, J., Jücker, M. & Mautner, V-F., 24.02.2020, In: *INT J MOL SCI*. 21, 4

Pathological Crosstalk between Metastatic Breast Cancer Cells and the Bone Microenvironment

Zarrer, J., Haider, M-T., Smit, D. J. & Taipaleenmäki, H., 19.02.2020, In: *BIOMOLECULES*. 10, 2

The Endosteal Niche in Breast Cancer Bone Metastasis

Haider, M-T., Smit, D. J. & Taipaleenmäki, H., 2020, In: *FRONT ONCOL*. 10, p. 335