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Expertise

Thomas Ertveldt is a junior postdoc at the VUB's Molecular Imaging and Therapy (MITH) research group. He recently concluded his doctoral studies revolving the immunogenic properties of targeted radionuclide therapy (TRT) mediated by single domain antibodies (sdAb's) and immune imaging upon immune intervention. With his research, he aspires to improve knowledge and tools to increase patients response as well as reduce adverse effects to novel therapies such as TRT and immunotherapy.

Research outputs

Efficient α and β - radionuclide therapy targeting fibroblast activation protein- α in an aggressive preclinical mouse tumour model

Ceuppens, H., Pombo Antunes, A. R., Navarro, L., Ertveldt, T., Berdal, M., Nagachinta, S., De Ridder, K., Lahoutte, T., Keyaerts, M., Devoogdt, N., Goyvaerts, C., D'Huyvetter, M. & Breckpot, K., Jan 2025, In: European Journal of Nuclear Medicine and Molecular Imaging. 52, 2, p. 444-457 14 p.

Generic semi-automated radiofluorination strategy for single domain antibodies: [18F]FB-labelled single domain antibodies for PET imaging of fibroblast activation protein- α or folate receptor- α overexpression in cancer

Dierick, H., Navarro, L., Ceuppens, H., Ertveldt, T., Pombo Antunes, A. R., Keyaerts, M., Devoogdt, N., Breckpot, K., D'Huyvetter, M., Lahoutte, T., Caveliers, V. & Bridoux, J., Dec 2024, In: EJNMMI Radiopharmacy and Chemistry. 9, 1, 14 p., 54.

Sustained release of a human pd-11 single-domain antibody using peptide-based hydrogels

Heremans, J., Maximilian Awad, R., Bridoux, J., Ertveldt, T., Caveliers, V., Maddar, A., Hoogenboom, R., Devoogdt, N., Ballet, S., Hernot, S., Breckpot, K. & Martin, C., Mar 2024, In: European Journal of Pharmaceutics and Biopharmaceutics. 196, 196, 21 p., 114183.

In vitro modelling of local gene therapy with IL-15/IL-15R α and a PD-L1 antagonist in melanoma reveals an interplay between NK cells and CD4+ T cells

Awad, R. M., De Vlaeminck, Y., Meeus, F., Ertveldt, T., Zeven, K., Ceuppens, H., Goyvaerts, C., Verdonck, M., Salguero, G., Raes, G., Devoogdt, N. & Breckpot, K., Dec 2023, In: Scientific reports. 13, 1, p. 1-13 13 p., 18995.

Nanobody-mediated SPECT/CT imaging reveals the spatiotemporal expression of programmed death-ligand 1 in response to a CD8+ T cell and iNKT cell activating mRNA vaccine

Ertveldt, T., Meulewaeter, S., De Vlaeminck, Y., Olarte, O., Broos, K., Van Calenbergh, S., Bourgeois, S., Deprez, J., Heremans, Y., Goyvaerts, C., Staels, W., De Smedt, S., Dewitte, H., Devoogdt, N., Keyaerts, M., Verbeke, R., Barbé, K., Lentacker, I. & Breckpot, K., 9 Oct 2023, In: Theranostics. 13, 15, p. 5483-5500 18 p.

Accepted poster session at ImmunoRad 2023: Targeted alpha therapy using Actinium-225 radiolabeled single domain antibodies induces antigen-specific immune responses and instills immunomodulation both systemically and at the tumor microenvironment

Ertveldt, T., Krasniqi, A., Ceuppens, H., Puttemans, J., Dekempeneer, Y., De Jonghe, K., de Mey, W., Lecocq, Q., De Vlaeminck, Y., Awad, R. M., Goyvaerts, C., De Veirman, K., Morgenstern, A., Bruchertseifer, F., Keyaerts, M., Devoogdt,

N., D'Huyvetter, M. & Breckpot, K., 27 Sept 2023.

Development and evaluation of nanobody tracers for noninvasive nuclear imaging of the immune-checkpoint TIGIT

Zeven, K., De Groof, T. W. M., Ceuppens, H., Awad, R. M., Ertveldt, T., de Mey, W., Meeus, F., Raes, G., Breckpot, K. & Devoogdt, N., 20 Sept 2023, In: *Frontiers in Immunology*. 14, 1, 16 p., 1268900.

Targeted α -Therapy Using ^{225}Ac Radiolabeled Single-Domain Antibodies Induces Antigen-Specific Immune Responses and Instills Immunomodulation Both Systemically and at the Tumor Microenvironment

Ertveldt, T., Krasniqi, A., Ceuppens, H., Puttemans, J., Dekempeneer, Y., De Jonghe, K., de Mey, W., Lecocq, Q., De Vlaeminck, Y., Awad, R. M., Goyvaerts, C., De Veirman, K., Morgenstern, A., Bruchertseifer, F., Keyaerts, M., Devoogdt, N., D'Huyvetter, M. & Breckpot, K., 1 May 2023, In: *Journal of Nuclear Medicine*. 64, 5, p. 751-758 8 p.

Optimizing the Safety and Efficacy of Bio-Radiopharmaceuticals for Cancer Therapy

Funeh, C. N., Devoogdt, N., Chigoho, D. M., De Groof, T., Bridoux, J., Ertveldt, T., Covens, P. & D'Huyvetter, M., May 2023, In: *Pharmaceutics*. 15, 5, 31 p., 1378.

Gompertz Model Use in Tumor Growth Curves Analysis

Olarte, O., Ertveldt, T., Meulewaeter, S., Keyaerts, M., Dewitte, H., Verbeke, R., Lentacker, I., Breckpot, K. & Barbé, K., 7 Mar 2023, *Mathematical Biosciences: Elsevier*, 31 p.

Radiolabeled single-domain antibodies as a means to evoke and monitor immunological responses in malignant lesions

Ertveldt, T., 2023, 177 p.

The development of radiolabeled nanobodies against the next-generation immune checkpoint TIGIT for non-invasive immune phenotyping of tumors

Zeven, K., De Groof, T., Awad, R. M., De Mey, W., Ertveldt, T., Ceuppens, H., De Jonghe, K., Raes, G., Keyaerts, M., Breckpot, K. & Devoogdt, N., 2023.

TNF- α -secreting lung tumor-infiltrated monocytes play a pivotal role for effective anti-PD-L1 immunotherapy

De Ridder, K., Locy, H., Piccioni, E., Zuazo, M. I., Awad, R. M., Verhulst, S., Van Bulck, M., De Vlaeminck, Y., Lecocq, Q., Reijmen, E., de Mey, W., De Beck, L., Ertveldt, T., Escors, D., Keyaerts, M., Breckpot, K. & Goyvaerts, C., 5 Sept 2022.

Characterization of the lung tumor microenvironment upon anti-PD-L1 therapy reveals an ambiguous role for TNF- α

De Ridder, K., Locy, H., Piccioni, E., Zuazo, M. I., Awad, R. M., Verhulst, S., Van Bulck, M., De Vlaeminck, Y., Lecocq, Q., Reijmen, E., de Mey, W., De Beck, L., Ertveldt, T., Escors, D., Keyaerts, M., Breckpot, K. & Goyvaerts, C., 6 Aug 2022.

Targeted radionuclide therapy with low and high-dose Lutetium-177 labeled single domain antibodies induces distinct immune signatures in a mouse melanoma model

Ertveldt, T., De Beck, L., De Ridder, K., Locy, H., De Mey, W., Goyvaerts, C., Lecocq, Q., Ceuppens, H., De Vlaeminck, Y., Awad, R. M., Keyaerts, M., Devoogdt, N., D'Huyvetter, M., Breckpot, K. & Krasniqi, A., Jul 2022, In: *Molecular Cancer Therapeutics*. 21, 7, p. 1136-1148 13 p.

TNF-alpha-Secreting Lung Tumor-Infiltrated Monocytes Play a Pivotal Role During Anti-PD-L1 Immunotherapy

De Ridder, K., Locy, H., Piccioni, E., Zuazo, M. I., Awad, R. M., Verhulst, S., Van Bulck, M., De Vlaeminck, Y., Lecocq, Q., Reijmen, E., De Mey, W., De Beck, L., Ertveldt, T., Pintelon, I., Timmermans, J-P., Escors, D., Keyaerts, M., Breckpot, K. & Goyvaerts, C., 14 Apr 2022, In: *Frontiers in Immunology*. 13, p. 1-15 15 p., 811867.

Characterization of the lung tumor microenvironment upon anti-PD-L1 therapy reveals an ambiguous role for TNF- α

De Ridder, K., Locy, H., Piccioni, E., Zuazo Ibarra, M., Awad, R. M., Verhulst, S., Van Bulck, M., De Vlaeminck, Y., Reijmen, E., de Mey, W., De Beck, L., Ertveldt, T., Escors, D., Keyaerts, M., Breckpot, K. & Goyvaerts, C., 30 Mar 2022.

168P Characterization of the lung tumor microenvironment upon anti-PD-L1 therapy reveals an ambiguous role for TNF- α

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Emerging applications of nanobodies in cancer therapy

Awad, R. M., Meeus, F., Ceuppens, H., Ertveldt, T., Hanssens, H., Lecocq, Q., Mateusiak, L., Zeven, K., Valenta, H., De Groof, T. W. M., De Vlaeminck, Y., Krasniqi, A., De Veirman, K., Goyvaerts, C., D'Huyvetter, M., Hernot, S., Devoogdt, N. & Breckpot, K., 2022, In: International review of cell and molecular biology. 369, p. 143-199 57 p.

Evaluation of single domain antibodies as nuclear tracers for imaging of the immune checkpoint receptor human lymphocyte activation gene-3 in cancer

Lecocq, Q., Debie, P., Puttemans, J., Awad, R. M., De Beck, L., Ertveldt, T., De Vlaeminck, Y., Goyvaerts, C., Raes, G., Keyaerts, M., Breckpot, K. & Devoogdt, N., 2 Nov 2021, In: EJNMMI Research. 11, 1, 13 p., 115.

Single-Domain Antibody Nuclear Imaging Allows Noninvasive Quantification of LAG-3 Expression by Tumor-Infiltrating Leukocytes and Predicts Response of Immune Checkpoint Blockade

Lecocq, Q., Awad, R. M., De Vlaeminck, Y., de Mey, W., Ertveldt, T., Goyvaerts, C., Raes, G., Thielemans, K., Keyaerts, M., Devoogdt, N. & Breckpot, K., Nov 2021, In: Journal of Nuclear Medicine. 62, 11, p. 1638-1644 7 p.

Formatting and gene-based delivery of a human PD-L1 single domain antibody for immune checkpoint blockade

Awad, R. M., Lecocq, Q., Zeven, K., Ertveldt, T., De Beck, L., Ceuppens, H., Broos, K., De Vlaeminck, Y., Goyvaerts, C., Verdonck, M., Raes, G., Van Parys, A., Cauwels, A., Keyaerts, M., Devoogdt, N. & Breckpot, K., 10 Sept 2021, In: Molecular Therapy: Methods & Clinical Development. 22, 9, p. 172-182 11 p., 10.

Gene-based delivery of human PD-L1 single domain antibody formats for immune checkpoint blockade

Awad, R. M., Lecocq, Q., Zeven, K., Ertveldt, T., De Beck, L., Ceuppens, H., Broos, K., De Vlaeminck, Y., Goyvaerts, C., Verdonck, M., Raes, G., Van Parys, A., Cauwels, A., Keyaerts, M., Devoogdt, N. & Breckpot, K., 22 Feb 2021.

CS1-specific single-domain antibodies labeled with Actinium-225 prolong survival and increase CD8+ T cells and PD-L1 expression in Multiple Myeloma

De Veirman, K., Puttemans, J., Krasniqi, A., Ertveldt, T., Hanssens, H., Romao, E., Hose, D., Goyvaert, C., Vlummens, P., Muyldermans, S., Breckpot, K., Bruchertseifer, F., Morgenstern, A., D'Huyvetter, M. & Devoogdt, N., 2021, In: Oncoimmunology. 10, 1, 11 p., 2000699.

Functional impact of anti-PD-L1 treatment on specific lung (tumor) residing myeloid cell subsets

De Ridder, K., Zuazo Ibarra, M., Awad, R. M., Neumann, J., De Vlaeminck, Y., Lecocq, Q., De Beck, L., Ertveldt, T., Locy, H., De Mey, W., Geeraerts, X., Brys, L., Laoui, D., Salmon, H., Breckpot, K. & Goyvaerts, C., 7 Feb 2020, p. 54. 1 p.

Investigating immune activation upon beta targeted radionuclide therapy using anti-CD20 single domain antibody fragments in melanoma

Ertveldt, T., Dekempeneer, Y., De Beck, L., Goyvaerts, C., Lecocq, Q., De Vlaeminck, Y., Awad, R. M., Devoogdt, N., Keyaerts, M., D'Huyvetter, M., Breckpot, K. & Krasniqi, A., 7 Feb 2020, p. page 79. 1 p.

Nanobody-mediated imaging of PD-L1 provides a rationale to combine Galsome vaccination with immune checkpoint blockade

Ertveldt, T., Meulewaeter, S., Lentacker, I., Verbeke, R., De Smedt, S., Olarte, O., Barbé, K., Keyaerts, M., Dewitte, H. & Breckpot, K., 7 Feb 2020, p. 1. 1 p.

Functional impact of anti-PD-L1 treatment on specific lung (tumor) residing myeloid cell subsets

De Ridder, K., Awad, R. M., De Vlaeminck, Y., Lecocq, Q., De Beck, L., Ertveldt, T., Locy, H., De Mey, W., Geeraerts, X., Brys, L., Laoui, D., Salmon, H., Breckpot, K. & Goyvaerts, C., 18 Oct 2019.

Targeted radionuclide therapy using anti-CD20 sdAbs: assessment of immune-activation post treatment with beta-emitting radionuclides

Ertveldt, T., Krasniqi, A., Keyaerts, M., Goyvaerts, C., Lecocq, Q., De Vlaeminck, Y., Awad, R. M., De Beck, L., Dekempeneer, Y., Devoogdt, N., D'Huyvetter, M. & Breckpot, K., 18 Oct 2019.

Functional impact of anti-PD-L1 treatment on specific lung (tumor) residing myeloid cell subsets

De Ridder, K., Awad, R. M., Lecocq, Q., De Vlaeminck, Y., De Beck, L., Locy, H., De Mey, W., Ertveldt, T., Geeraerts, X., Brys, L., Laoui, D., Salmon, H., Breckpot, K. & Goyvaerts, C., 25 Sept 2019.

Immunogenic effect of targeted radionuclide therapy-induced tumor cell death

Ertveldt, T., Krasniqi, A., D'Huyvetter, M., Goyvaerts, C., Lecocq, Q., De Vlaeminck, Y., Awad, R. M., De Beck, L., Devoogdt, N., Keyaerts, M. & Breckpot, K., 25 Jun 2019.

Does targeted radionuclide therapy using ¹⁷⁷Lutetium induce immune activation upon treatment?

Ertveldt, T., Krasniqi, A., Keyaerts, M., Goyvaerts, C., Lecocq, Q., De Vlaeminck, Y., Awad, R. M., De Beck, L., Dekempeneer, Y., Devoogdt, N., D'Huyvetter, M. & Breckpot, K., 7 Jun 2019.

Turn back the TIME of Tumor Infiltrating Myeloid cells in non-small cell lung cancer

De Ridder, K., Awad, R. M., De Vlaeminck, Y., De Beck, L., Ertveldt, T., Seghers, S., Van De Velde, E., Geeraerts, X., Brys, L., Laoui, D., Breckpot, K. & Goyvaerts, C., 7 Jun 2019.

Turn back the TIME of Tumor Infiltrating Myeloid cells in non-small cell lung cancer

De Ridder, K., Awad, R. M., De Vlaeminck, Y., De Beck, L., Ertveldt, T., Seghers, S., Van De Velde, E., Geeraerts, X., Brys, L., Laoui, D., Breckpot, K. & Goyvaerts, C., 7 May 2019.

Activities

Efficient α and β - radionuclide therapy targeting fibroblast activation protein- α in an aggressive preclinical mouse tumour model.

Hannelore Ceuppens (Speaker), Ana Rita Pombo Antunes (Contributor), Laurent Navarro (Contributor), Thomas Ertveldt (Contributor), Marion Berdal (Contributor), Surasa Nagachinta (Contributor), Kirsten De Ridder (Contributor), Marleen Keyaerts (Contributor), Nick Devoogdt (Contributor), Cleo Goyvaerts (Contributor), Matthias D'Huyvetter (Contributor) & Karine Breckpot (Contributor)
23 Oct 2024

SCK NMA-talk

Thomas Ertveldt (Presenter), Nick Devoogdt (Invited speaker) & Matthias D'Huyvetter (Contributor)
14 Nov 2023

Cancer Biotherapy and Radiopharmaceuticals (Journal)

Thomas Ertveldt (Peer reviewer)
1 Oct 2023 → 31 Oct 2023

Development and evaluation of Nanobody tracers for non-invasive nuclear imaging of the next generation immune checkpoint TIGIT

Katty Zeven (Speaker), Timo De Groof (Contributor), Hannelore Ceuppens (Contributor), Robin Maximilian Awad (Contributor), Thomas Ertveldt (Contributor), Geert Raes (Contributor), Karine Breckpot (Contributor) & Nick Devoogdt (Contributor)
18 Sept 2023 → 20 Sept 2023

The development of radiolabeled nanobodies against the next-generation immune checkpoint TIGIT for non-invasive immune phenotyping of tumors

Katty Zeven (Speaker), Timo De Groof (Contributor), Robin Maximilian Awad (Contributor), Wout De Mey (Contributor), Thomas Ertveldt (Contributor), Hannelore Ceuppens (Contributor), Kevin De Jonghe (Contributor), Geert Raes (Contributor), Marleen Keyaerts (Contributor), Karine Breckpot (Contributor) & Nick Devoogdt (Contributor)
16 Mar 2023

Noninvasive imaging and inhibition of human programmed death ligand 1 (PD-L1) using nanobody K2 to improve cancer immunotherapy

Robin Maximilian Awad (Contributor), Dora Mugoli Chigoho (Contributor), Katrijn Broos (Contributor), Quentin Lecocq (Contributor), Katty Zeven (Contributor), Thomas Ertveldt (Contributor), Lien De Beck (Contributor), Hannelore Ceuppens (Contributor), Yannick De Vlaeminck (Contributor), Cleo Goyvaerts (Contributor), Steve Schoonoghe (Contributor), Vicky Cavelliers (Contributor), Catarina Xavier (Contributor), Jessica Bridoux (Contributor), Geert Raes (Contributor), Marleen

Keyaerts (Contributor), Nick Devoogdt (Contributor) & Karine Breckpot (Speaker)
25 Oct 2021 → 26 Oct 2021

Nanobody-mediated molecular imaging provides spatiotemporal insight in mRNA-vaccine-induced PD-L1 upregulation
Thomas Ertveldt (Speaker), Sofie Meulewaeter (Speaker), Ine Lentacker (Contributor), Rein Verbeke (Contributor), Stefaan De Smedt (Contributor), Oscar Javier Olarte Rodriguez (Contributor), Kurt Barbé (Contributor), Nick Devoogdt (Contributor), Marleen Keyaerts (Contributor), Heleen Dewitte (Contributor) & Karine Breckpot (Contributor)
19 Apr 2021

Projects

FWOSB80: Combining targeted radionuclide therapy and cancer immunotherapy to advance precision medicine through innovation.

Breckpot, K., Devoogdt, N., D'Huyvetter, M., Keyaerts, M. & Ertveldt, T.
1/11/19 → 31/10/23

Student theses

Evaluation of targeted radionuclide therapy-mediated immunogenic effects

Author: Hugé, H. L. S., Ertveldt, T., Krasniqi, A., Raes, G. & D'Huyvetter, M., 29 Jun 2020
Supervisor: D'Huyvetter, M. (Promotor), Raes, G. (Co-promotor), Ertveldt, T. (Advisor) & Krasniqi, A. (Advisor)

Immunogenic effect of targeted radionuclide therapy-induced tumor cell death

Author: Ertveldt, T., Breckpot, K., Keyaerts, M., D'Huyvetter, M. & Krasniqi, A., 15 Jun 2019
Supervisor: Krasniqi, A. (Promotor)