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Short presentation

As head of the TARGETS team my focus is on a family of "sticky" proteins known as the *Plasmodium falciparum* erythrocyte membrane protein 1 (PfEMP1). *P. falciparum* is the most pathogenic malaria parasite and a major cause of morbidity and mortality among children in sub-Saharan Africa. The virulence of *P. falciparum* is linked to its expression of PfEMP1 on the surface of infected erythrocytes; these proteins enable the parasites to "stick" to capillaries of the host and are involved in pathogenesis as well of development of immunity to malaria. We have identified a subset of PfEMP1 proteins of importance in severe malaria and are currently investigating their involvement in the molecular mechanisms elicited in cerebral malaria. Read more about our latest discovery at the Advanced Science web site.

Research outputs

PfEMP1 and var genes – Still of key importance in *Plasmodium falciparum* malaria pathogenesis and immunity

Hviid, Lars, Jensen, Anja Ramstedt & Deitsch, K. W., 2024, (E-pub ahead of print) *Advances in Parasitology*. Academic Press, 51 p. (Advances in Parasitology).

3D blood-brain barrier-organoids as a model for Lyme neuroborreliosis highlighting genospecies dependent organotropism

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3D organoid assay of the impact of infected erythrocyte adhesion on the blood-brain barrier

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Affinity purification of PfEMP1-specific antibodies from human blood

Olsen, Rebecca Wendelboe, Suurbaar, Jennifer & Jensen, Anja Ramstedt, 2022, *Malaria Immunology: Targeting the Surface of Infected Erythrocytes*. Humana Press, Vol. 2470. p. 369-379 11 p. (Methods in molecular biology (Clifton, N.J.)).

Analysis of antibody inhibition of PfEMP1 binding by competition ELISA

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Breadth of antibodies to *Plasmodium falciparum* variant surface antigens is associated with immunity in a controlled human malaria infection study

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Cerebral malaria - modelling interactions at the blood-brain barrier *in vitro*

Adams, Yvonne & Jensen, Anja Ramstedt, 2022, In: *Disease models & mechanisms*. 15, 7, dmm049410.

Chip-based assay of adhesion of *Plasmodium falciparum*-infected erythrocytes to cells under flow

Adams, Yvonne & Jensen, Anja Ramstedt, 2022, *Malaria Immunology: Targeting the Surface of Infected Erythrocytes*. Jensen, A. T. R. & Hviid, L. (eds.). Humana Press, p. 545-556 12 p. (Methods in molecular biology (Clifton, N.J.)).

ICAM-1-binding *Plasmodium falciparum* erythrocyte membrane protein 1 variants elicits opsonic-phagocytosis IgG responses in Beninese children

Suurbaar, Jennifer, Moussiliou, A., Tahar, R., Olsen, Rebecca Wendelboe, Adams, Yvonne, Dalgaard, Nanna, Baafour, E. K., Adukpo, S., Hviid, Lars, Kusi, K. A., Alao, J., Ofori, M. F., Ndam, N. T. & Jensen, Anja Ramstedt, 2022, In: Scientific Reports. 12, 12994.

Malaria immunology: Targeting the surface of infected erythrocytes

Jensen, Anja Ramstedt (ed.) & Hviid, Lars (ed.), 2022, Humana Press. 796 p. (Methods in Molecular Biology, Vol. 2470).

Neutrophils impose strong immune pressure against PfEMP1 variants implicated in cerebral malaria

Zelter, T., Strahilevitz, J., Simantov, K., Yajuk, O., Adams, Yvonne, Jensen, Anja Ramstedt, Dzikowski, R. & Granot, Z., 2022, In: EMBO Reports. 23, e53641.

Production of anti-PfEMP1 polyclonal antisera in rats and mice

Olsen, Rebecca Wendelboe, Suurbaar, Jennifer & Jensen, Anja Ramstedt, 2022, *Malaria Immunology: Targeting the Surface of Infected Erythrocytes*. Jensen, A. T. R. & Hviid, L. (eds.). Humana Press, Vol. 2470. p. 381-389 9 p. (Methods in molecular biology (Clifton, N.J.)).

Receptor affinity-based purification of PfEMP1 proteins

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IRDye800CW labeled uPAR-targeting peptide for fluorescence-guided glioblastoma surgery: Preclinical studies in orthotopic xenografts

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PfEMP1-specific immunoglobulin G reactivity among Beninese pregnant women with sickle cell trait

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Knudsen, Anne Schmitterlau, Björnsson, K. H., Bassi, Maria Rosaria, Walker, Melanie Rose, Kok, A., Cristinoi, B., Jensen, Anja Ramstedt & Barfod, Lea Klingenberg, 2021, In: Frontiers in Immunology. 12, 716305.

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Jensen, Anja Ramstedt, Adams, Yvonne & Hviid, Lars, 2020, In: Immunological Reviews. 293, 1, p. 230-252

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Olsen, Rebecca Wendelboe, Ecklu-Mensah, G., Bengtsson, A., Ofori, M. F., Kusi, K. A., Koram, K. A., Hviid, Lars, Adams, Yvonne & Jensen, Anja Ramstedt, 2019, In: Infection and Immunity. 87, 10, e00224-19.

Gas-coupled receptor signaling and sleep regulate integrin activation of human antigen-specific T cells

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A vaccine targeted specifically to prevent cerebral malaria - is there hope?

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Ecklu-Mensah, G., Olsen, Rebecca Wendelboe, Bengtsson, A., Ofori, M. F., Hviid, Lars, Jensen, Anja Ramstedt & Adams, Yvonne, 2018, In: PLoS ONE. 13, 10, 12 p., e0204177.

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***In vitro* selection of *Plasmodium falciparum* 3D7 for expression of variant surface antigens associated with severe malaria in African children**

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