peripheral blood monocytes with several transgenic mouse lines and models. Our findings not only clarify the source of hyalocytes but also provide an important resource for future studies of hyalocytes in terms of marker selection, in line with previous eye macrophage studies. Importantly, the senescence of hyalocytes as a long-lived, self-maintaining cell population, might be contributing directly to the development of vitreoretinal diseases. This insight provides a better understanding of disease mechanisms and with this, new therapeutic avenues for patient treatment in the future.

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Presentation number: 22.4
Topic: Embryology and Cell Biology

SERPINB5-TGF-β Signalling Modulates Desmosomal Adhesion and Ameliorates Skin Blistering Phenotypes

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Impairment of desmosomal cell-cell adhesion leads to several life-threatening diseases such as the autoimmune skin blistering disorder pemphigus vulgaris (PV). Strategies which directly stabilize intercellular adhesion, in combination to the existing immunosuppression therapy, may provide ways to improve clinical outcomes. Previous findings showed that SERPINB5 promotes intercellular adhesion by binding to and regulating the localization of the desmosomal adapter molecule desmoplakin (DSP) at the plasma membrane. SERPINB5 overexpression abrogated PV-IgG mediated loss of cell-cell adhesion and prevents the loss of DSP from the cell membrane. SERPINB5 negatively regulates TGF-β signaling, a known regulator of DSP in keratinocytes. TGF-β signaling was activated in skin biopsies of PV patients and keratinocytes treated with PV-IgG or PX4_3, suggesting a contribution to disease. Inhibition of TGF-β activation, ameliorated the PV-IgG mediated loss of cell-cell adhesion, increased DSP membrane expression and prevented PV-IgG-induced blister formation in human *ex-vivo* skin model. Thus, SERPINB5 modulates DSP and intercellular adhesion through regulation of TGF-β signaling. Further, TGF-β inhibition was identified as potential target for pemphigus treatment.

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Presentation number: 22.5
Topic: Neuroanatomy

The Influence of Bilingualism on Gray Matter Volume within Subregions of the Hippocampal Formation

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The hippocampal formation (HF) shows age-related structural atrophy associated with memory decline. “Brain reserve” may help preserve memory function during aging. Bilingualism is related to higher gray matter volume (GMV) as one form of brain reserve in the HF. However, the differential influence of bilingualism on HF subregions remains unclear. Thus, we investigated GMV differences and differences in age-GMV-relationships between mono- and bilinguals in the HF and two HF subregions, hippocampus proper (HPr) and subicular complex (SubC).

GMV differences in mono- vs. bilinguals were assessed in 661 adults (257 monolinguals) from the 1000BRAINS study for six regions of interest (left/right HF, left/right HPr and left/right SubC) using ANCOVAs. Effects of bilingualism on age-GMV-relationships were investigated via moderation analyses.

We found higher GMV in bilinguals in the bilateral HF and SubC. Moderation analyses revealed similar age-GMV-relationships between mono- and bilinguals in the bilateral SubC, left HF, and left HPr, but a steeper negative relationship for monolinguals in the right HF and HPr.

We confirmed higher GMV in bilinguals’ HF. With the bilateral HPr showing no effect of language group, bilingualism appears to specifically add brain reserve to regions putatively subserving memory retrieval (SubC) rather than encoding. With similar age-GMV-relationships for mono- and bilinguals, bilingual brain reserve in the SubC may persist over time. For the right HPr, the rate of GMV decline with age was higher for monolinguals, indicating better local brain structure maintenance in bilinguals. Altogether, our results provide new insights into structural adaptations to bilingualism in the human HF.

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Presentation number: 22.6
Topic: Neuroanatomy

Chronic Blockade and Optogenetic Stimulation of Synaptic Activity Alters Dendritic Dynamics and Spinogenesis in Postnatally Born Hippocampal Granule Cells

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Neurogenesis of hippocampal granule cells (GCs) starts in the late embryonic phase, peaks postnatally and continues during adulthood. Increasing evidence points to functionally relevant hippocampal