Linking **structural neuroimaging** with **transcriptomic profiling** of white matter hyperintensities and microvasculature in **Alzheimer's disease**

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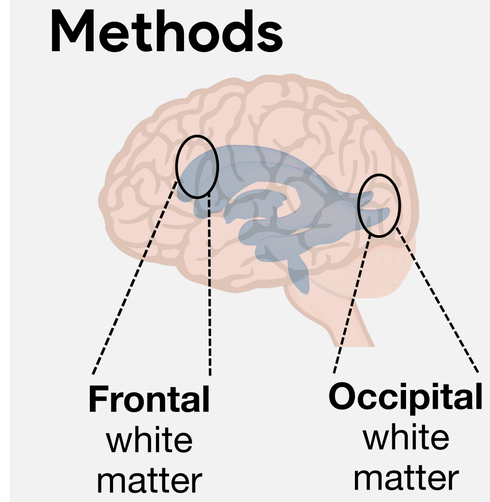
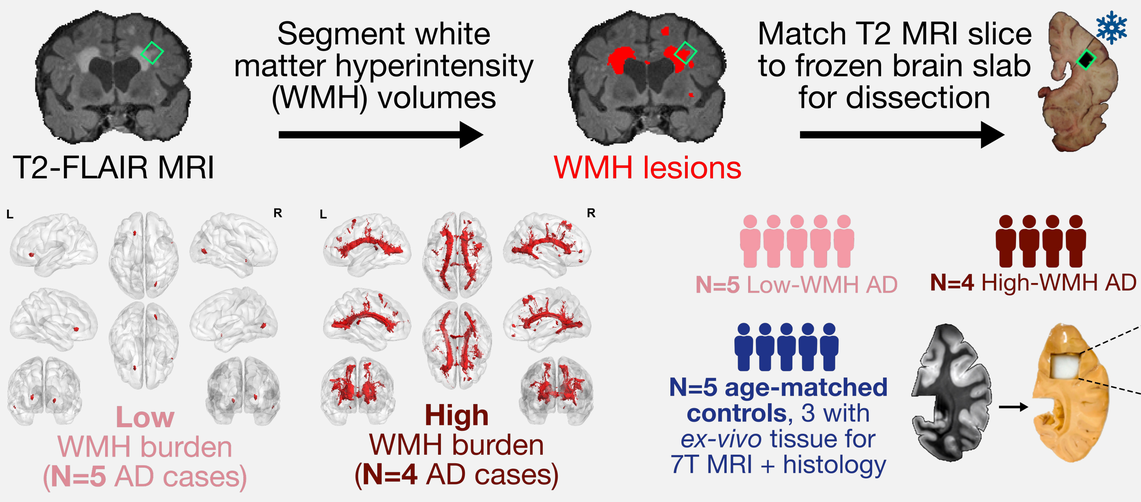
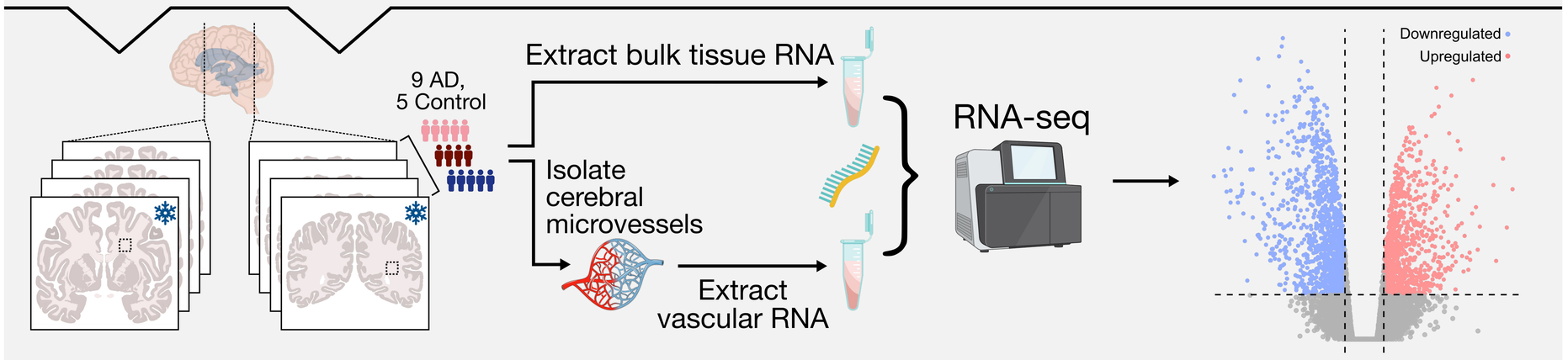
Background

White matter hyperintensities (WMHs), visible with T2-weighted magnetic resonance imaging (MRI), are common to **normative aging** and to both small vessel disease and **Alzheimer's disease (AD).** An estimated 90% of individuals older than 65 develop WMHs [1,2], and WMH burden is inversely associated with cognitive performance in AD [3]. Despite these **prevalent associations**, the **etiology and implications of WMHs for AD pathogenesis** remain unclear [4].

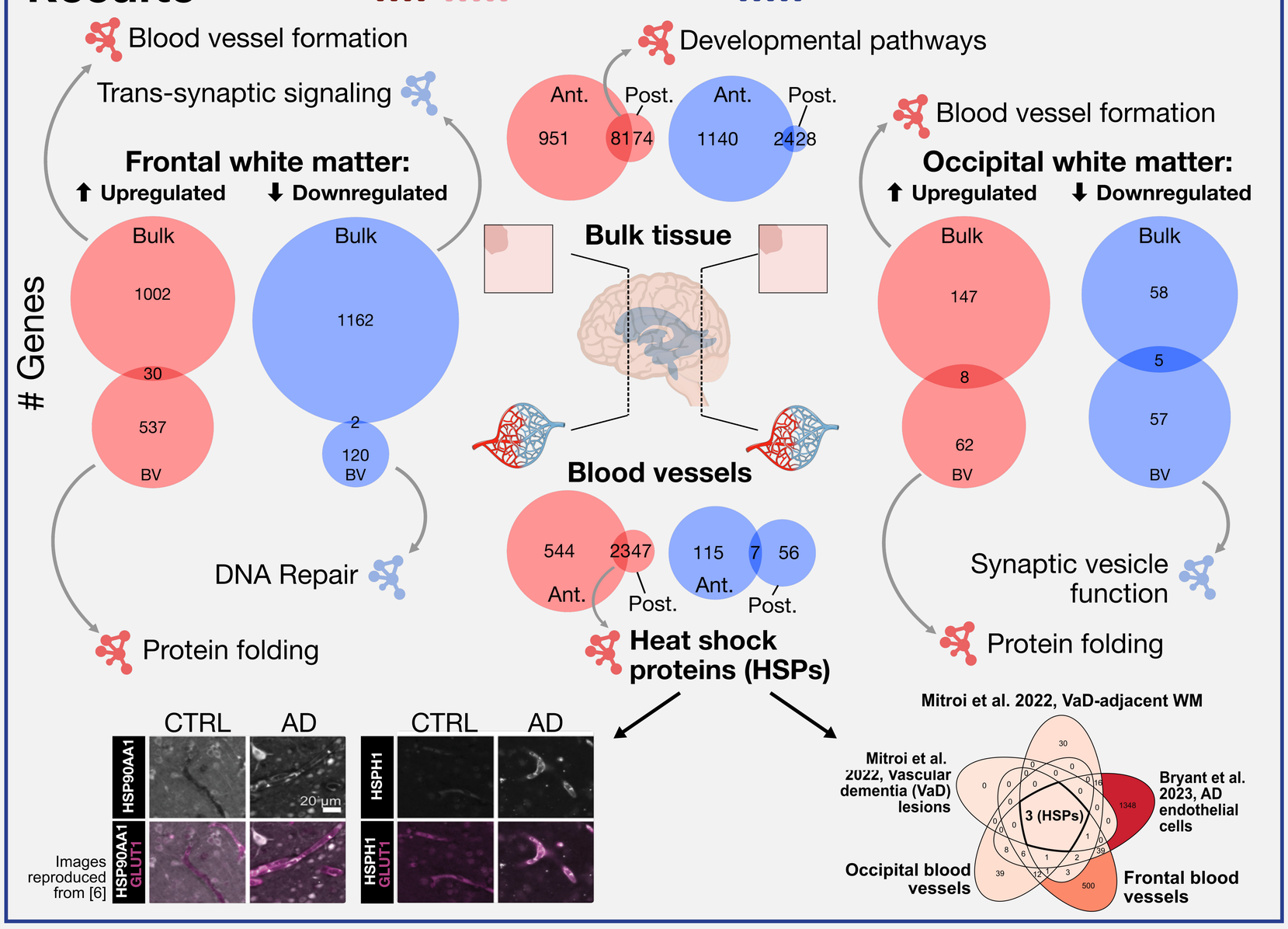
Methods

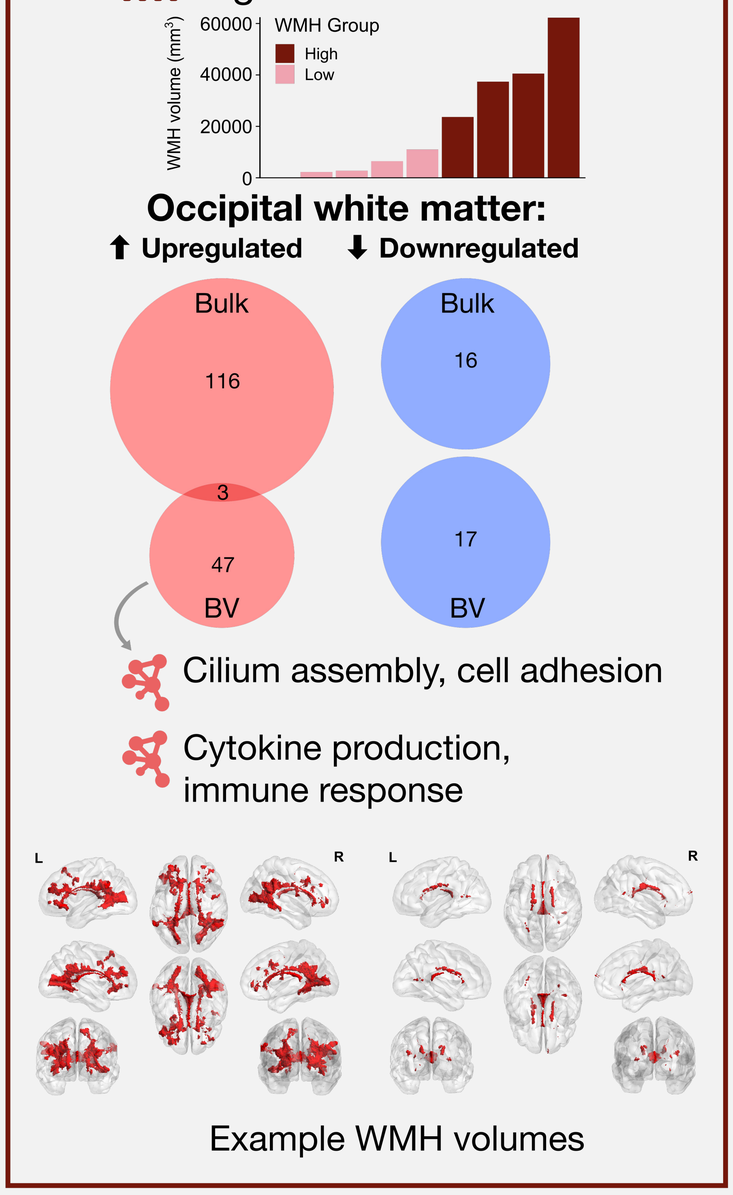






Results





Conclusions

We deeply characterize the **region-specific WM transcriptome** in the context of **WMH formation in AD**, with a focus on **cerebral microvasculature**. Our findings underscore diverse associations between the **WM transcriptome** and both **AD pathology and WMH burden**, with **heterogeneity** between frontal vs. occipital WM. Our results align with prior work showing **upregulated heat shock protein** pathway members in AD brain tissue.

Further info

Check out our preprint (Malla S, Bryant AG, et al., *biorXiv* 2024) or email me with any follow-up Q's:

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Selected References

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