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Lipocalin 2 and the pathophysiology of Alzheimer's disease

1. Lipocalin 2 protein levels are increased in the brains of Alzheimer patients and Alzheimer mice, and differ between Alzheimer patients with and without co-existing depression. The potential biological, therapeutic and diagnostic relevance of these altered Lipocalin 2 levels in Alzheimer's disease requires further elucidation. (This thesis)
2. Lipocalin 2 does not significantly affect major Alzheimer-like characteristics (including cognitive impairment, A β plaque load and glial activation) in 12 months old J20 Alzheimer mice. (This thesis)
3. Lipocalin 2 contributes to brain iron accumulation in J20 Alzheimer mice, and also plays a role in brain iron homeostasis under healthy conditions. (This thesis)
4. It is increasingly recognized that microbial infections and consequent antimicrobial responses may play a role in Alzheimer's disease. Lipocalin 2 has antibacterial effects and could significantly contribute to these processes, which should be investigated further.
5. In order to more closely model the complex nature of Alzheimer's disease, in future Alzheimer animal studies it would be valuable to take into account different risk factors, such as increasing age, chronic/acute inflammation, microbiome changes and disturbed energy metabolism.
6. Human and animal studies regarding Alzheimer's disease should not only focus on pathological processes in the brain, but ideally also on pathological changes that take place in the rest of the body, and the interactions between them.
7. Processes such as neuroinflammation and iron metabolism rely on intricate communication between different cell types. For *in vitro* investigations of these processes it is therefore essential to use complex culture systems that include different cell types.
8. Keeping the body's and brain's immune system in range may be the most promising strategy to prevent and/or treat Alzheimer's disease.
9. Researchers should not fear failure. Failure is unavoidable, and is important for the progress of science.
10. Before starting a real experiment, it is always important to perform pilot studies. They give researchers a (right- or wrongful) sense of certainty.
11. Mice may arrange secret meetings, in which they vote against or in favor of participating in behavioral experiments.
12. When, during long-term mouse experiments, you are complimented on your native language speaking skills, this may indicate that you are not spending sufficient time with humans.