Immunoprophylaxis targeting SOD1 in motor neuron disease.

Acronym: SOD- VIP

Principal Investigator: Matthew HOLT

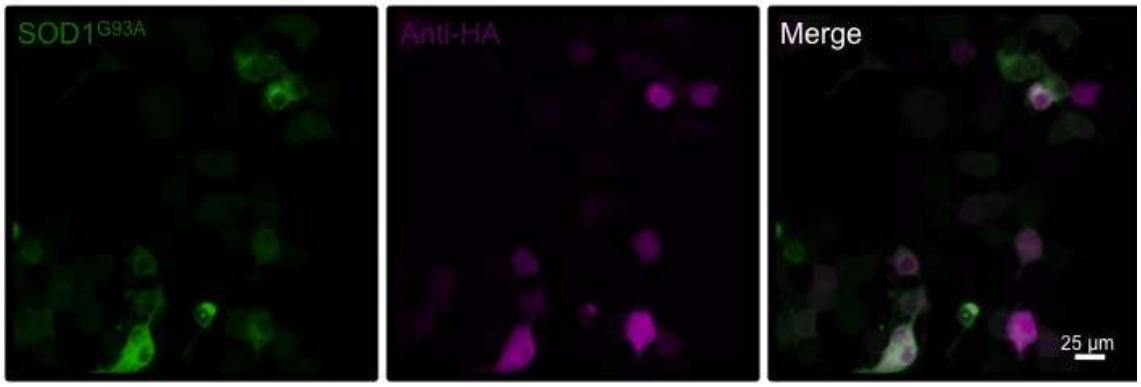
Grant: 75 000€

Duration: one year

Summary of the research project

The project is the first part of an ambitious project aiming at slowing or stopping the aggregation of mutant SOD1 using a single domain antibody fragment (nanobody) delivered using a viral vector system.

During the first phase, anti- SOD1 nanobodies will be produced based on the preliminary results obtains by the teams. Those nanobodies will be further tested both in vitro and in vivo to see if they can dissolve pre-existing human SOD1 aggregates and if they induce a reduction (or at least not an increase) in the level of total intracellular SOD1.



green : SOD1 aggregates

pink : nanobodies.

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The project will be performed in collaboration with

Ludo Van Den Bosch, group leader at Vesalius Research Center in the same institute.

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Relevant research articles for this project are:

- **-** Depner, H., Lützkendorf, J., Abdelsalam Babkir, H., Sigrist, S.J., **Holt, M.*** (2014). Differential centrifugation-based biochemical fractionation of the *Drosophila* adult CNS. *Nature Protocols, 9*(12*), 2796-2808* (IF most recent: 7.96). *corresponding authorship.
- **-** Hosoi, N., **Holt, M.**, Sakaba, T. (2009). Calcium dependence of exo- and endocytotic coupling at a glutamatergic synapse. *Neuron, 63*(2), 216-229. (citations: 76) (IF publication year: 13.26).
- **- Holt, M.**, Riedel, D., Stein, A., Schuette, C., Jahn, R. (2008). Synaptic vesicles are constitutively active fusion machines that function independently of Ca^{2+}. *Current Biology, 18*(10), 715-722. (citations: 29) (IF publication year: 10.78).