

Neuronal correlates of repetitive whisker stimulation in the Neuregulin 1 mouse model of schizophrenia

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**Neuronal correlates of repetitive whisker stimulation
in the *Neuregulin 1* mouse model of schizophrenia**

Dissertation by Claudia Barz
defended on Monday, 30 June 2014, at 12.00 hours

PROPOSITIONS:

1. The rodent somatosensory cortex is a suitable model to study schizophrenia-related impairments in sensory processing.
2. Mutations in the *Neuregulin 1* gene are associated with electrophysiological endophenotypes of schizophrenia.
3. Disrupting the *Neuregulin 1* gene is associated with alterations in the encoding and processing of sensory information.
4. Mice and human subjects carrying the *Neuregulin 1* mutation may show impairments in somatosensory frequency discrimination tasks.
5. Sensory processing deficits contribute to higher-order cognitive deficits in schizophrenic patients.
6. Sensory and cognitive deficits associated with schizophrenia are related to alterations in shared molecular pathways.
7. Understanding the mechanisms associated with sensory and cognitive deficiencies in schizophrenic patients requires more detailed studies in animal models of schizophrenia, in particular with regard to changes in the cellular electrophysiology and morphology, and concomitant changes in the behavior.
8. Genes that increase the susceptibility to schizophrenia in humans are often also associated with other pathological conditions. Hence findings in genetic animal models of schizophrenia should be systematically compared to findings in other disease models to understand common and distinct features of different pathologies, and to develop a better disease (sub-) classification.