VIPR2 gene as a risk factor and therapeutic target for schizophrenia

Technology #2866

Schizophrenia is a chronic and debilitating thought disorder that affects approximately 1% of the population. This disorder is thought to result from many genetic risk factors, but its etiology remains poorly understood. This technology is the finding that duplications in the vasoactive intestinal peptide receptor gene (VIPR2) are much more common in schizophrenia patients (0.35%) than the general population (0.03%). VIPR2 is a receptor for VIP, a neuropeptide expressed widely in the adult brain, where it regulates the firing and excitability of neurons. By identifying this association, the technology suggests VIPR2 may serve as a diagnostic tool for determining the risk of schizophrenia in patients. Additionally, VIPR2 constitutes a potential therapeutic target for improving patient treatment.

Genome-wide analysis detected VIPR2 duplication in schizophrenia patients

This technology identified VIPR2 as a risk factor for schizophrenia through a genome-wide analysis of DNA copy-number in over 1,500 patients. Moreover, three other genes previously described in schizophrenia were also identified, validating the power of this study to detect disease relevant genes. Cultured lymphocytes from patients with VIPR2 duplications showed increased VIPR2 transcription and cAMP signaling, indicating that VIPR2 signaling is altered in these patients and may be involved in disease pathogenesis.

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Applications:
- Diagnostic tool to determine risk of schizophrenia.
- Identification of other pathways interacting with VIPR2 signaling to contribute towards schizophrenia.
- Therapeutic target for patients with schizophrenia.
Advantages:

- Identified by genome-wide analysis of DNA copy-number variations in over 1,500 patients.
- Present in approximately 0.35 % of schizophrenia patients, compared to only 0.03 % of control patients.
- Implication of altered VIPR2 signaling in the pathogenesis of schizophrenia.

Patent information:

Patent Pending (WO2012094681)

Licensing Status:

Available for licensing and sponsored research support

Tech Ventures Reference: IR 2866

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