Imaging markers developed to facilitate diagnosis and treatment of schizophrenia
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The scientists have recently developed a novel imaging marker that may help in the personalized medicine of psychiatric disorders.

The study, published in *Nature Medicine* on Mar. 23, shows that abnormal striatal function can be a promising biomarker for the diagnosis of schizophrenia and treatment response.

In their search for suitable biomarkers, the scientists collected multimodal neuroimaging data from a total of 1100 individuals with schizophrenia and healthy controls from 2010-15.

Using the large dataset, the researchers first proposed the concept of "functional striatal abnormalities." They then used artificial intelligence technology on resting state fMRI data to map striatal dysfunction at the individual level.

The researchers showed, for the first time, that striatal dysfunction was effective in distinguishing schizophrenia patients and that such dysfunction was also responsible for poorer antipsychotic response.

Based on the newly developed biomarker, the researchers extended their research to other neuropsychiatric disorders. They showed that individuals with bipolar disorder also showed striatal dysfunction that overlapped with the dysfunction associated with schizophrenia.

After combining different levels of data, the researchers suggested that striatal dysfunction is related to the dopaminergic system and polygenic genetic risk for schizophrenia.

The study also evaluated using this biomarker to predict diagnostic labels and treatment responses across several different hospitals.

The scientists hope research on the biological underpinnings of psychiatric disorders will increase
understanding of disease mechanisms as well as guide new drug development.


A web-based tool developed to calculate personalized functional striatal abnormalities (FSA) score for each individual is available at [https://www.szbiomarkers.net/](https://www.szbiomarkers.net/)

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