Technology from Kyoto University

Novel Therapeutics for Obsessive-Compulsive Disorder and Process Addictions

We are looking to out-license the technology for its commercialization.

Therapeutic candidates showing strong efficacy and rapid onset in treating treatment-resistant psychiatric disorders, such as OCD and process addictions

◆ Background

OCD and process addictions are characterized by repetitive behaviors that are difficult for patients to voluntarily control, significantly impairing daily functioning.

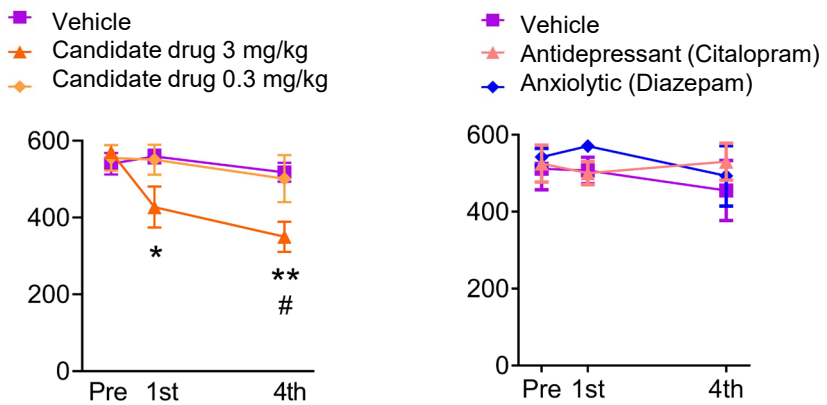
Common pharmacological treatments for OCD include high-dose, long-term administration of antidepressants such as selective serotonin reuptake inhibitors (SSRIs). However, over half of patients are classified as treatment-resistant, showing little or no response to antidepressants.

Moreover, process addictions - such as gaming disorder and internet addiction - are newly recognized behavioral conditions, and currently, no approved pharmacological treatments are available.

◆ Description

Leveraging proprietary analyses of large-scale medical datasets, researchers at Kyoto University developed a drug-induced mouse model of OCD that is unresponsive to SSRIs, effectively mimicking treatment-resistant OCD. In-depth analysis of the model revealed an imbalance between D1- and D2-receptor-positive neurons in the striatum leading to the identification of a key target gene and a promising therapeutic candidate capable of restoring this balance (Fig. 1).

- **Offers hope for majority of OCD patients resistant to SSRIs**
- **Shared neural mechanisms in OCD and process addictions suggest new therapeutic potential**



*P < 0.05, **P < 0.01 vs. vehicle (for candidate drug at 3 mg/kg)
#P < 0.05 vs. candidate drug at 0.3 mg/kg

Figure 1. Effect of the candidate drug on Repetitive Behavior in an OCD Mouse Model

To evaluate the drug's efficacy in reducing repetitive behaviors, a rodent model of compulsive behavior - specifically, the repeated gnawing of bedding material - was used as an index of OCD-like symptoms. OCD model mice were intraperitoneally administered either the new drug candidate, an existing antidepressant (citalopram), an anxiolytic (diazepam), or vehicle control once daily. Stereotypic behavior was observed for 10 minutes on days 1 and 4 of treatment. Administration of the new drug candidate at 3 mg/kg significantly suppressed stereotypic behavior (left), whereas neither the existing antidepressant nor the anxiolytic showed significant effects (right).

◆Development Status

- Validated efficacy of candidate drug in OCD model mice
- Ongoing evaluation for potential indication expansion

◆Potential Applications

Drug Discovery

- Drug repositioning
- Novel compound screening based on the identified gene target

◆Offers

- Patent License
- Collaborative Research

◆Contact

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