

Improved control of impulsivity and compulsivity

How would you propose to identify and verify novel molecular mechanisms that lead to improved control of impulsive and compulsive behavior?

Answers to this <u>question</u> including a proposal for collaboration can only be considered if they arrive no later than July 8, 2025, 11:59 pm PST.



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What is the context of the problem that we would like to solve?

About 1 in 8 people worldwide live with mental illness. Most of these people struggle over many years to find effective treatment, and only one-third achieve lasting remission. There is an urgent need for novel, effective treatments.

One symptom cluster that affects patients across diverse diagnoses is impulse control dysfunction, exemplified by impulsivity and compulsivity. Impulsivity is defined as the propensity to make decisions without adequate premeditation or lacking regard for consequences, often culminating in premature actions. It affects - to a variable degree - patients with a diagnosis of borderline personality disorder, affective disorders, posttraumatic stress disorder, and substance use disorders. Compulsive behavior, on the other hand, are acts that a person feels driven to perform persistently and repetitively, including shopping, hoarding, eating, gambling, drug use, and others. It is particularly prominent in obsessive-compulsive disorder, autism, Tourette's syndrome, and in substance use disorder. Impulsivity and compulsivity are related; they share the disregard for negative consequence of one's behavior, and they may manifest as subsequent phases of behavior, e.g. in drug abuse.

The consequences of impulsive and compulsive behavior can be severe, encompassing comorbid substance use, elevated clinical severity, thereby diminishing quality of life and overall functioning. Impulsivity can also impose a significant burden on caregivers and healthcare systems due to the substantial clinical resources required to manage the related symptoms and behaviors.

Currently, there are no approved medications specifically addressing impulse control. Therefore, patients with maladaptive impulsivity and compulsivity have a high unmet need for novel treatment options.

In summary, as part of our current opnMe call, we are interested in identifying and verifying novel molecular mechanisms that lead to improved impulse control.

What potential solutions could be in scope?

- Any unconventional but feasible approach considering the identification and validation of molecular mechanisms and targets which are likely to play a role in the control of impulsive/compulsive behaviors, e.g. using experiments or data bridging the space from molecules all the way to human patients.
- 2. A proposal describing a specific molecular target that was identified and validated with an approach as described in (1).
- 3. Any already identified asset (small drug molecules, biologicals, any new modality, digital tool, etc.), but not yet public, is of interest.
- 4. Any proposal which links clinical impulsivity or compulsivity (clinical tasks, scales, real-world behaviors) to predictive preclinical models or vice versa.

What potential solutions would be out of scope?

Projects that are based on technologies requiring first substantial establishment and validation (no previous hands-on experience) will be deprioritized.



What benefits do we offer to you in exchange for having submitted a solution?

This call represents a unique chance to make a significant impact in impulse control research. By participating, you have the opportunity to collaborate directly with the Neuroscience and Mental Health Discovery Research teams of Boehringer Ingelheim.

Successful proposals will not only impact our understanding of impulse control, but also be rewarded with tailored and scalable funding packages and / or if IP is involved, appropriate business options along well-defined parameters.

We predict that eligible solutions may come from scientists with very different backgrounds, ranging from academia, start-ups, biotech, or even larger enterprises such as pharmaceutical or digital life science companies.

Winning proposals should therefore expect appropriate funding that will help them to bring their conceptual idea and/or discovery (invention) to the next level. Depending on the complexity and maturity of a proposed solution, it may require different budget terms that would be negotiated with the selected partners in good faith. If applicable, respective business options will be negotiated with winning proposals.

Depending on the status of the project and applicability, we also offer a range of possibilities to support the winner besides funding. Examples are access to high-quality molecules, execution of pharmacokinetics studies, collaboration with experts in fields from neuroscience to clinical studies.

We prefer to receive proposals focused on a timeframe of approximately two years to reach the next decision point on preclinical or clinical research or milestone towards clinical readiness. In case a project proposal has reached sufficient maturity to build on existing – or reasonably soon to be filed – IP, licensing, or options to licensing agreements, or similar business collaborations could be considered as well. Upon successful outcome, we may engage in a long-term collaboration with the selected winner.

We are particularly interested in finding mutually agreeable solutions concerning each partner's rights and obligations (including intellectual property rights). Furthermore, winners will be encouraged to publish their findings in accordance with the collaboration agreement, which will be negotiated in good faith. We hope that this represents a great opportunity for your innovative ideas and solutions to gain recognition in the scientific community.

For some winners, it may be beneficial to announce their partnership with Boehringer Ingelheim. Depending on the conditions of the agreement and mutual needs, we would be open for such an arrangement.

What are the key success criteria on which we base our selection for the best answer?

Our scientific review will address the following key success criteria for selecting winning proposals:

• The proposed solution must be based on a compelling scientific hypothesis and addresses the in-scope and out-of-scope criteria of this call.



- A well-structured proposal with a clear outline of the required funding budget, actionable milestones, and a time plan where it should be assumed that Boehringer Ingelheim would fund the next step towards proof-of-concept of the proposed approach for impulse control.
- Ideally, the proposed solution is backed up by relevant (preliminary) data and it should be based on established and existing methods, assays and involve tools, reagents, or data that are accessible.
- A mitigation plan should be included to overcome the anticipated hurdles that also includes a contingency plan in case one approach may not lead to the desired outcome.
- Information regarding intellectual property / third party infringement used in the context of the submission.
- The access to relevant infrastructure to implement the proposed solution is a prerequisite of a collaboration with Boehringer Ingelheim.
- Ability to reach tangible results within a timeframe of approximately two years to reach the next decision point on preclinical or clinical research or milestone towards clinical readiness.

What information should be included in your answer submission?

Please use our answer submission template to provide a 2–3 page <u>non-confidential</u> proposal (available for download on the following <u>site</u>).

If confidential data exists that would strengthen the proposal, please indicate that information is available to share under a Confidential Disclosure Agreement (CDA). If we find the non-confidential concept proposal sufficiently interesting, we will execute a CDA for confidential discussions.

Anticipated Project Phases or Project Plan

Phase 1	Please complete your submission by July 8, 2025, 11:59 pm PST at the very latest.
Phase 2	Our review of all proposals will be completed by mid-September and scientists will be informed after that.
Phase 3	Start of discussions for the collaboration agreement in Q4/2025.

Submitting a collaboration proposal

- Check the outline of the opn2EXPERTS "<u>Improved control of impulsivity and compulsivity</u>" on opnMe.
- Alternatively, you may click the "Get Submission Template" banner to access the material transfer template.
- Follow the instructions to upload your submission document (requires login or registration).
- The upload allows you to attach additional application files if desired.
- You will be able to access your final submitted collaboration proposal in your personal dashboard and follow its review status.
- Please also visit the FAQ section on opnMe.com to learn more about our opn2EXPERTS program.

