opnMe by Boehringer Ingelheim

Endometriosis model mirroring human disease

How would you propose to develop an *in vivo* endometriosis model reflecting fibrotic pathophysiology of human lesions and identify actionable therapeutic strategies?

Answers to this question including a proposal for collaboration can only be considered if they arrive no later than November 12, 2025, 11:59 pm PST.

Boehringer Ingelheim

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

Endometriosis is a chronic, systemic, estrogen-driven disorder wherein disease lesions comprising tissue similar to the uterine lining (endometrium) develop outside the uterus. Ectopic lesions invade surrounding structures, triggering inflammation, neo-neuroangiogenesis, fibrosis, pain, and organ dysfunction. Fibrosis is a key pathological feature of all types of endometriotic lesions. It is believed to be closely linked to pelvic pain, which is the most common symptom of the disease. This pain significantly impacts patient's quality of life.

Targeting fibrotic pathomechanisms in endometriotic lesions may offer a promising therapeutic approach for this severe condition. However, there is limited information on the development of fibrosis and a lack of preclinical models that effectively reflect clinically relevant endpoints, such as chronic fibrosis. While existing rodent models address certain aspects, such as inflammation and immune dysregulation, they often fail to adequately represent fibrosis, thereby poorly capturing the complexity of the disease. Moreover, these models do not sufficiently depict the severity, characteristics, and drivers of fibrosis observed in human clinical cases of endometriosis. The underlaying interplay of signaling mechanisms that contribute to lesion formation within a fibrotic environment also remains underexplored. These limitations underscore the urgent need for improved *in vivo* models that accurately translates the fibrotic pathology of the disease and enable a deeper investigation into its mechanisms.

What potential solutions could be in scope?

Innovative *in vivo* model that has to meet all of the following criteria:

- Allow the identification and validation of protein targets that drive fibrotic pathomechanisms in endometriotic lesions and/or are involved in the interplay of myofibroblasts and peripheral nerve fibers.
- Use of endometrium separated from the myometrium or human endometriosis lesion tissue to induce lesions in the *in vivo* model.
- Allow the quantification of fibrosis in lesions through histological analysis.
- Show an increase in fibrosis biomarkers that are translatable to human endometriosis lesions.
- Demonstrate measurable abdominal pain or behavioral readouts indicative of abdominal discomfort.

What potential solutions would be out of scope?

- Models based on non-human primates (NHPs).
- Models utilizing pieces of uterine tissue containing myometrium for lesion induction.
- Models that exhibit lesion inflammation but no further progression to fibrotic phenotype.
- Models that exhibit central sensitization but no abdominal pain/discomfort.
- Models that exhibit lesion regression/self-recovery over time.
- *in silico* models

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

If your project is selected, you will have the opportunity to directly collaborate with the Eye Health & Research Beyond Borders (EH&RBB) team of Boehringer Ingelheim.

You can also expect appropriate funding for the prospective collaboration period. Your exact funding request should be outlined in your proposal. As a framework, we suggest that your initial funding request is structured in milestones and does not exceed 150,000 euros annually over a course of maximum two years per submitted project in total (including direct, indirect, overhead costs).

Our collaboration agreement will provide full transparency about each partner's rights & obligations (including intellectual property rights). As part of the agreement, you will be encouraged to publish following the collaboration agreement (to be negotiated in good faith).

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

The proposal needs to be highly feasible, should be based on established and existing methods, assays and involve tools / reagents that are either available or which can be easily produced. We expect that the project will be executed in your laboratory and takes advantage of existing technologies and methods.

In addition, we are seeking research collaboration proposals that contain:

- A well-structured proposal outlining a new and compelling scientific approach.
- Outlining of the technical feasibility, and potentially existing data or previous publications that support feasibility / experience with outlined technology, based on existing and established assays.
- Your exact funding request should be outlined in your proposal based on a well-thought-through project. The project should be structured in milestones and planned with key decision points (clear Go/No-Go criteria). The funding request for the initial milestones

resulting in a Go/No-Go decision does not exceed 150,000 euros annually over a course of maximum two years per submitted project in total.
- Proven track record in the required field of expertise.
- Ability to implement the outlined solution as part of a scientific collaboration project with Boehringer Ingelheim including access to a wet laboratory.
- Proposals with an anticipated execution time of 2 years will be prioritized.

What information should be included in your answer submission?

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

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 **November 12, 2025, 11:59 pm PST at** the very latest.
Phase 2	Our review of all proposals will be completed by year end and scientists will be informed beginning of 2026.
Phase 3	Start of discussions for the collaboration agreement in Q1/2026.

Submitting a collaboration proposal

- Check the outline of the opn2EXPERTS "Endometriosis model reflecting human disease" 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.