

**CHALLENGE
PROGRAMME 2022 -
ENERGY MATERIALS
WITH BIOLOGICAL
APPLICATIONS**

Information and guidelines for applicants

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Information about the call

Grant capital:
DKK 120 million

Award amount
Up to approx. DKK 10 million per year for up to 6 years, for a total budget of DKK 30-60 million per grant

Application form opens:
15 June 2021

Application deadline:
Stage 1: 3 November 2021, 2 pm.
Stage 2: 10 February 2022, 2 pm.

Applicant notification:
Stage 1: December 2021
Stage 2: June 2022

Earliest start date:
1 August 2022

Latest start date:
1 June 2023

Review committee:
Applications will be evaluated by an independent, international committee of scientific experts. The committees will be posted on the Novo Nordisk Foundation website

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1 CHALLENGE PROGRAMME 2022 – ENERGY MATERIALS WITH BIOLOGICAL APPLICATIONS

These guidelines are intended to assist you in the application process when applying for a grant from the Novo Nordisk Foundation (NNF). It is important that you carefully read these guidelines before initiating the application process, as the guidelines contain the complete call text as well as instructions regarding the completion of the application.

NNF will treat all applicant and application information confidentially. Read more about how NNF processes personal data under 'privacy & security' in the online application system, NORMA. See how to access NORMA in section 2 of these guidelines.

Furthermore, please read 'General Terms and Conditions' for grants from NNF that all Grant Recipients must comply with:

<http://www.novonordiskfonden.dk/en/content/conditions-grants>

1.1 PURPOSE

The purpose of the NNF Challenge Programme is to make substantial contribution to the development and strengthening of the Danish research environment, within research aimed to solve major challenges in global health, technology and sustainability. The Challenge Programme supports excellent researchers who will establish research and collaborate in a dynamic centre structure with a unifying vision and mission. The Programme provides long-term funding to enable scientific depth and focus and facilitate synergy between the research partners.

1.2 RESEARCH THEME 2022

The programme is a strategic effort targeting specific challenges within annually selected research themes. For the 2022 application call, the Challenge Programme is seeking to support the following research theme:

- **Energy harvesting, transforming, or storage materials with potential use for bioelectronic devices – enabling next generation wearable or implantable health technologies**

With the overall aim of enabling novel applications within the life- or biosciences, the challenge is to design, model, synthesize, and/or characterize novel bio-compatible energy materials. The focus is on energy harvesting, transforming, or storage materials with potential application for health-tech wearables, implantable devices, or other bioelectronic applications. The research should also address biocompatibility and potential toxicological or mechanically adverse effects.

The research must be in-depth, preferably cross- or inter-disciplinary, of fundamental character and may include any research methodology or discipline within the life-, natural- or technical-

sciences. Material characterization in large-scale facilities as, e.g., MAX-IV or ESS could be a part of the proposed research.

Non-excluding examples include:

- Material research of bio-compatible energy materials for harvesting, transforming, or storage systems with potential use in bioelectronics devices.
- Material research for developing soft bioelectronic interfaces or biomimetic flexible materials.
- Applications in health wearables or implantable devices, including powering of bioelectronic sensors.
- Computationally driven bio-energy-materials development and modelling using artificial intelligence.

Please note that the examples mentioned above are neither exhaustive, nor limiting, and merely serve the purpose of providing inspiration for this Challenge Programme theme.

1.3 ELIGIBILITY

The Challenge Programme supports excellent research leaders from 2-4 research groups (main applicant plus 1-3 co-applicants).

The programme leader must be at least 75% affiliated with a Danish university, hospital or other non-profit research organization, that will be considered the host institution of the project.

The research institutions of the co-applicants can be located in Denmark or abroad. The co-applicants should contribute significantly to the advancement of the project and should receive part of the funding.

Industry collaboration is possible; however, funding cannot be awarded to industrial partner(s).

General rules for applications:

- a. Being the recipient of another Novo Nordisk foundation research grant does not preclude receiving a Challenge Programme grant.
- b. Holders of an active Challenge Programme grant may apply for a new Challenge Programme grant during the final year of the grant; however, a new Challenge grant cannot be activated until the existing grant is completed and no longer active.
- c. Please refer to our general terms and conditions (<https://novonordiskfonden.dk/en/conditions-for-grants/>) for further information that apply when applying for/receiving a grant from NNF.

1.4 DIALOGUE MEETINGS AND THEMATIC SYMPOSIA

To follow the progress of the individual Challenge research programmes, the Foundation will hold dialogue meetings with grant recipients every second year. Grant recipients will receive information regarding the timeline and format of these meetings.

To facilitate network building and knowledge-sharing, the grant recipients within each theme are expected, together, to facilitate two thematic symposia during the grant period. The thematic symposia may take place at the Novo Nordisk Foundation. The foundation will provide a separate budget and cover the costs of the symposia.

Please note: These symposia **should not** be included in the application budget.

1.5 FUNDING

Within each theme, a total of up to DKK 120 million is available for grants between DKK 30 million and DKK 60 million for projects running for up to 6 years.

The grant cannot be used to cover the salary of the main applicant or the co-applicant(s).

Applicants may apply for funding for the following types of expenses:

- Salary for research and technical assistance, including laboratory administrators, postdoctoral researchers, and Ph.D. students (including tuition fee up to DKK 80,000 per year per student, which must be specified in the budget).
- Salary for project manager or project coordinator.
- Direct project costs, including materials, consumables, data management, and purchase of services.
- Equipment provided it is essential for the proposed project and its use after completion of the project can be clearly justified.
NB: Equipment purchased at expenses above DKK 100,000, should be located at the host institution both during and after the project period. Applicants can request to place the equipment at the co-applicant's premises, but it must be addressed and justified in the application.
- Infrastructure required for the project. Infrastructure funded by the grant must be located at the host institution both during and after the project period. Free/excess capacity for the infrastructure must be made available to the wider research community.
- Expenses related to scientific publications.
- Expenses to workshops, meetings, exchange, seminars, and other efforts directed at ensuring fruitful collaboration between the partners of the programme.
- Travelling, accommodation, and registration for scientific conferences.
- Bench fee: Support for individual researchers for the coverage of direct expenses needed to conduct the research project applied for (must be specified in the budget). Bench fees may only be used for operating expenses, lab consumables, and access to lab space and facilities, that cannot be included within another individual budget category. To include a bench fee in the budget, the fee must be a part of the general expenses policy of the institute/institution and must apply to all employees for which the policy concerns.
- Administrative support may account for a maximum of 5% of the total budget and must be included therein.

The administrative support:

- can cover expenses such as for accounting, payment of salaries, purchasing, hiring, as well as auditing and financial reporting on the project
- cannot cover administrative expenses that are not directly related to the project
- can via the host institution be shared between the institutions of the main- and co-applicant(s), as detailed in the application budget
- is not automatically included in the grant, and must be stated/applied for in the application budget, but should not be specified in detail

The Novo Nordisk Foundation does not allow double funding of projects.

- If the applicant has received funding for the proposed project from other sources, or parts of it, it **must be** accounted for in the budget, as no budgetary overlaps are allowed.
- If an identical or overlapping project proposal has been submitted to other funding institutions than the Novo Nordisk Foundation, it **must be** stated in the application.
- If the applicant, post application submission, receives funding for the project or parts of the applied project from others, the Novo Nordisk Foundation **must be** contacted immediately.

NNF will not award funding for:

- commercial activities
- overhead



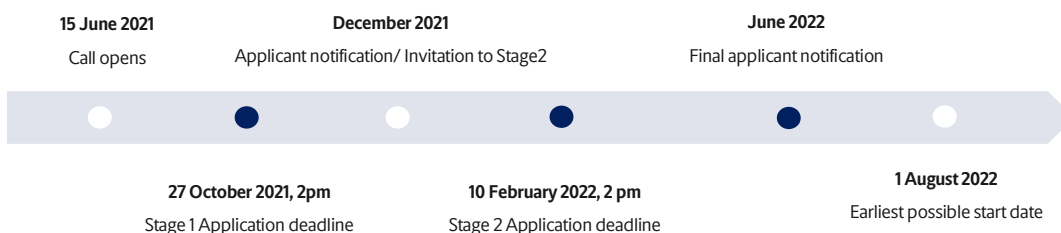
The grant may not be used to cover 'overhead' (i.e. rent, electricity, water, maintenance etc.)

1.6 LANGUAGE

The application and any additional uploads must be written in English.

1.7 APPLICATION PROCESS

The application process consists of two stages. The **Stage 1** submission is a short expression of interest and does not contain a detailed budget. A number of shortlisted applicants will be invited to **Stage 2**, in which the invited applicants should submit a comprehensive application. As part of the Stage 2 evaluation, the main applicant will be invited to the Novo Nordisk Foundation to present and discuss their proposed research projects with the review committee.



The application must be completed and submitted using NNF's online application and grant management system, NORMA, which can be accessed from:

<https://norma.novonordiskfonden.dk>

Further information on how to access and navigate in NORMA can be found in chapter 2. **Please see section 3.2 for detailed information on expected content and format of the application.**

When all applications have been assessed, applicants will be notified about whether or not they have been awarded a grant. The notification e-mail will be sent from noreply@norma.novonordiskfonden.dk to the e-mail address entered on initial registration.



NNF does not provide feedback in case an application is not selected for funding.

1.8 ASSESSMENT CRITERIA

Applications will be evaluated by an independent, international committee of scientific experts. The selection of the successful Challenge Programme applicants will be based on the following criteria:

- scientific excellence, originality, and potential impact.
- feasibility of the project and suitability of the proposed centre setup.
- the leadership qualifications of the main applicant, and
- the financial situation and prior obligations of the applicants, in case it can compromise the dedication to, and quality of, the proposed work.

If you have an active grant from NNF, this may be taken into consideration in the evaluation of your application for a new grant. In general, it is recommended that the Grant Recipient has delivered results on the active grant(s) before submission of a new application to NNF. If you apply, while having an active grant from NNF, you must describe how the project you propose in this application is different from and/or coherent with the project(s) already funded and briefly describe the progress of the already funded project(s). If you are the holder of an active Challenge grant, please be aware of the Eligibility criteria in Sec. 1.3.

2 THE APPLICATION AND GRANT MANAGEMENT SYSTEM – NORMA

Sections 2 and 3 provide guidance on completing and submitting an application through NNF's online application and grant management system NORMA. Section 2 contains general technical information, while section 3 contains information specific to the individual call. All the fields of the application form must be completed in accordance with these guidelines and the instructions in NORMA.

2.1 USER REGISTRATION

NORMA can be accessed through links on NNF's website or directly at: <https://norma.novonordiskfonden.dk>

Before you begin, please read the instructions on the login page.

If you do not have a user profile in NORMA, you can register by clicking on REGISTER AS APPLICANT. You will be asked to fill in a contact form, which will appear in a new window. The

main applicant should only have one user profile. Use your work e-mail address for registration. After the registration, you will receive an e-mail with your username and password. You can now log in to NORMA. When you log in for the first time, you will be asked to change your password.

Applicants who have previously applied for a grant from NNF or have an active grant may already have a user profile in NORMA. If you are in doubt, an existing user profile can be retrieved by clicking FORGOT PASSWORD and entering an e-mail address. If you have a user profile in the system, you will receive an e-mail with login information and a new password within 5–10 minutes.

A registered user who submits an application is legally responsible for the truthfulness of the content of the application.

If you experience technical problems, please contact NORMA Support: norma-support@novo.dk.



An applicant cannot change the e-mail address provided at registration. Please contact NORMA Support if you need to change your e-mail address.

2.2 CREATING AN APPLICATION

To initiate a new application, you first need to identify the call and grant you wish to apply for. From the Applicant portal in NORMA, scroll down to the OPEN CALLS section, where all currently available calls are visible. Use the search filters at the top of the section to filter by, e.g., overall funding area or geography.

Initiate an application by clicking the blue APPLY NOW button. Your draft application is then created and will remain a draft version until you actively submit the application.

You can create and subsequently edit a draft version of the application until the deadline. A draft application can be saved by clicking SAVE DRAFT and may be cancelled at any time up to the deadline by clicking the button CANCEL APPLICATION. An application is not submitted to NNF until the applicant has clicked SUBMIT.

The application comprises tabbed sheets that need to be completed but not necessarily in chronological order. Fields marked with a red star (*) are obligatory to fill in.

You can review the application at any time by clicking OPEN under MY APPLICATIONS on the Applicant Portal in NORMA. The whole application, including any currently entered data, can be downloaded as a PDF file by clicking on APPLICATION PDF. Make sure the PDF is readable and formatted appropriately before submitting your application.

2.3 TEXT AND ILLUSTRATIONS

FILLING IN THE FIELDS

For all applications, the individual fields must be completed in accordance with these guidelines and the instructions supplied in NORMA.



To prevent loss of data, it is essential to press **SAVE DRAFT** before you leave NORMA or navigate in the system.

APPLICATION TEXTS

Text from Word, for example, can be copied and pasted into most text fields of the application. It is, however, important to check that formatting, special letters and symbols have not been converted or lost in the text fields after copying and pasting. If the formatting looks wrong in NORMA and in the PDF, you can try to change all text to “Normal” under the tab **FORMAT**.

The available functions for formatting text are at the top of the text fields. Some shorter text fields do not have the option to format.



For readability purposes, standard fonts, font size 11-12, and line spacing between 1.0 and 1.5 must be used.

ILLUSTRATIONS

Illustrations with figures, charts, tables, images etc. related to the project description can be uploaded under **PROPOSAL** (a maximum of four illustrations are allowed). Include the illustration number and a legend or caption for each illustration file when uploading. The illustrations will be integrated in the final application PDF.

The following file formats for illustrations are accepted in the system: JPG, JPEG, PNG and BMP. The maximum accepted size for each illustration is 1050*1650 pixels.

2.4 SUBMITTING THE APPLICATION

The application in its entirety must be submitted electronically via the application system by clicking **SUBMIT**. It is not possible to submit an application, or any part of it, by standard mail or e-mail. Material submitted outside the application system will not be included in the evaluation and will not be returned.

All applicants must read and accept NNF's Standards for Good Research Practice before submitting the application. A link can be found under “Policies” in the top right corner of the window. Further, the applicant must declare that the information provided in the application is true and accurate.

An application cannot be submitted unless all the required fields have been completed. Fields in the application that are incorrectly completed or incomplete will be listed in a box at the top of

the screen. Clicking on each individual line marked in red takes you directly to the incomplete field. The box will disappear when you select SAVE DRAFT. This allows you to continue with the application and submission.



A list of any incorrect or incomplete entries will be autogenerated when you click SUBMIT. Amending incorrect or incomplete entries can be time-consuming, so we recommend submitting applications well before the deadline.

If you wish to modify a submitted application before the deadline, it is possible to reopen the application. Be aware that the application must be resubmitted before the deadline. Applications cannot be modified after the submission deadline.

Once the application has been submitted, a confirmation of receipt will be sent to the e-mail address used for logging into the system. If you do not receive a confirmation of receipt (please check your spam folder), you should contact NNF as soon as possible using the contact details on page 3.

If you wish to withdraw a submitted application after the deadline, you must contact NNF via e-mail, using the contact information on page 3.



Please remember to check that the PDF version of the application is legible and contains all entered information and uploads before submitting the application.

3 APPLICATION CONTENT

This section provides guidelines on the content required in the sections of the online application form for this call.

3.1 APPLICANT

The applicant tab contains various sections with information about the main applicant as well as any co-applicants:

- Personal information
- Educational information
- Current institution
- Experience
- Co-applicant(s)
- Previous and Current Grants from NNF

MAIN APPLICANT

CV for main applicant: can be a maximum of 4,000 characters (including spaces, line breaks and special characters). Please include in your CV a short bibliographic overview summarizing total number of peer-reviewed publications, number of first authorships, number of corresponding authorships, number of citations, and h-index.

Publications list (for main applicant). Can be a maximum of 5,000 characters (including spaces, line breaks and special characters). Please only include the 10 most relevant publications for evaluating your merits. Include a complete specification of all authors for each publication with your own name highlighted. Applicants are strongly encouraged to provide a full list of publications in ORCID.

Supplementary Information (under Applicant Information). This field can be utilized to describe special circumstances regarding your application that the evaluation committee should be aware of, e.g. current terms of employment. Please do not include any personal information of a sensitive nature, e.g. illnesses, family conditions etc.

PREVIOUS AND CURRENT GRANTS FROM NNF

If you have previously submitted other applications in the same calendar year, summarize how these applications are related to the current application.

If you have received any grants from NNF as an applicant or a co-applicant within the past five years, you must provide the application number, project title, grant period (in years), grant amount and the percentage share of the grant (100% if there is no co-applicant). Briefly summarize how any of the grants are related to the current application.

CO-APPLICANT(S)

For this call, a number of co-applicants may be either required or allowed for the application. Co-applicants participate actively in organizing and implementing the project and receive a share of the grant. **The project description should clearly describe the role of any co-applicants, and the budget should clearly indicate the co-applicants' share of the total budget.** Co-applicants must be invited through NORMA and subsequently confirm their status as co-applicants in the application.

- Go to the INVITATIONS link in the blue field on the left.
- Click the + symbol and enter the name and e-mail address of the co-applicant.
- Select CO-APPLICANT under ROLE in the drop-down menu.
- Click INVITE.
- Co-applicants will be contacted automatically through NORMA and asked to confirm their status as co-applicants.

When the co-applicant accepts his or her status as co-applicant, additional fields will appear in the application. The CO-APPLICANT field includes information about co-applicant(s), including previous grants received from NNF. A short CV (maximum two pages) or an endorsement from the institution for each co-applicant can also be uploaded as a PDF file by clicking on CO-APPLICANT UPLOAD(S).

Either the co-applicant or the main applicant must complete the CO-APPLICANT field. Only one person can edit the application at a time.

If the co-applicant has confirmed participation but the information has not been entered in the CO-APPLICANT field, NORMA will not include the co-applicant as part of the application. The main applicant must therefore check that the information about any co-applicant(s) is included in the application before submitting it.

If co-applicants are mandatory, the application cannot be submitted before the required number of co-applicants have accepted. Similarly, if the number of co-applicants exceeds the maximum number allowed, the application cannot be submitted.

Please start the process of inviting co-applicants well in advance of the submission deadline.



Please note that co-applicants can read, edit and upload information in the entire application but cannot submit the application.

3.2 INSTITUTION

Please provide information about the institution where the grant will be administered. This institution is where you will be employed during the grant period and the institution which will be responsible for budgeting, accounting and staff supported by the grant.



Registering a new administrating institution in NORMA can take up two working days. The application can be edited but cannot be submitted before this information is registered. We therefore recommend that you register an administrating institution in good time.

3.3 PROPOSAL

Describe the project using the following fields on the PROPOSAL tab:

PROJECT TITLE

Please provide a short title for the project (maximum 150 characters, including spaces).

BRIEF PROJECT DESCRIPTION

Please provide a brief stand-alone summary of the project describing its purpose, target group and activities (maximum 2000 characters, including spaces).

PROJECT DESCRIPTION

The **Stage 1** project description must include the following elements (a maximum of 10,000 characters, including spaces):

- The proposed research, including its relevance for the theme and hypotheses to be addressed.
- The project's originality, ambition, and expected outcome.

- An organizational outline of the centre, and how this setting is foreseen to be particularly well suited to address the proposed challenge.
- The roles of the participating applicants and their research groups.

The **Stage 2** project description must include the following elements (a maximum of 30,000 characters, including spaces):

- an extensive, detailed research proposal, including descriptions of work packages, theoretical/experimental approaches and methodologies (existing or to be developed).
- a description of the involved research groups and their roles and plans for national and international research collaboration and partnerships.
- plans for ensuring the establishment of a learning environment able to foster the next generation of outstanding researchers.
- a detailed account of the proposed governance and organizational structure of the centre.

Abbreviations should be defined at the first use, and preferably a list of abbreviations should be included in the project description.

ILLUSTRATION UPLOADS

A maximum of four illustrations of 50 mb each can be uploaded to the project description for the Stage 1 and Stage 2 applications. Accepted formats are .jpg, .png, .gif, .bmp.

LITERATURE REFERENCES

Please provide the reference information for the literature cited in the project description (maximum 4000 characters, including spaces).

LAY PROJECT DESCRIPTION

Please provide a brief summary for non-experts in lay language. If the application is awarded a grant, the text may be used for publication (maximum 1000 characters, including spaces).



Please note that the application should address all the assessment criteria listed in subsection 1.7.

3.4 BUDGET

A detailed budget is **not** required for **Stage 1** application. However, please indicate the approximate total requested amount, the total additional contributions, and the total project cost in the Norma system.

A detailed budget is required for **Stage 2** applications. This budget should clearly indicate the co-applicants share of the total budget.

The budget only comprises the information entered in the BUDGET tab. Additional budget information attached under UPLOADS or added under other tabs than BUDGET will not be considered. The budget must be entered in budget years following the grant period and not calendar years.

GRANT PERIOD

Before you can fill in the budget template, start by entering the start and end dates for the grant. NORMA then generates a grant period in whole years, which is reflected in the budget template. The grant period is the duration of NNF's grant for the project.

Complete the budget as follows:

- Click on the blue OPEN/EDIT icon to open a budget in a pop-up window.
- Click the + key to add budget rows.
- Select one of the budget headings, enter an amount under VALUE (DKK) and specify what the amount is for under DESCRIPTION.
- All amounts must be stated in Danish kroner (DKK) without decimal points, commas or spaces. NORMA automatically inserts the thousands separator.
- In the first budget year, the costs are shown from the project start until 31 December. The first budget year can cover a period of 15 months if the project's start date falls within one of the last three months (October, November or December) of a calendar year. This ensures that the next budget year follows the calendar year.
- In the subsequent budget years, the costs are shown from 1 January to 31 December.
- The last budget year can cover a period of 15 months if the project's end date falls within one of the first three months (January, February or March) of a calendar year.
- Save and close the budget spreadsheet by clicking SAVE and CLOSE (in that order) and then return to the BUDGET tab.

Important: If you make any changes to the grant period after filling out the budget, you must clear the budget table before making the change to the grant period.

Any comments about the budget can be entered in the SUPPLEMENTARY INFORMATION field. The number of months covered by the budget in individual budget years should be specified here if they differ from 12 months.

Funding, both received and applied for, from the applicant's own organisation and from other sources should be entered under ADDITIONAL CONTRIBUTIONS FOR THE PROJECT. The amount entered should be the total sum for the entire grant period. The NNF does not allow double funding and there can be no budgetary overlaps between projects. The INFORMATION FOR ADDITIONAL CONTRIBUTIONS field must clearly describe what the additional contributions cover and how the project proposed in this application is different from the project already funded or applied for from other parties than NNF. If the applicant, after submitting the application, receives funding for the project or parts of the applied project from others, the NNF must be contacted immediately.

IMPORTANT! The way in which the budget is set up influences any later financial reporting to NNF. Please note that the financial accounts must have the same headings as the budget posts in the application.



Applicants may only apply for the types of expenses listed in subsection 1.4.

3.5 APPENDICES

Mandatory uploads – only for Stage 2

- Signed letters of commitment from each of the co-applicants, stating their contribution to advancing the project and their commitment to their share in the grant (*Support letter*). Note: this is a letter from the co-applicant; not the co-applicant's institution.
- Signed letter of commitment from the Danish host institution, taking responsibility to hosting the project as well as administrating the grant (*Hosting letter*).

Please do not attach other appendices such as recommendations, support letters from collaborators, etc.

All uploads must be in PDF format. NORMA automatically places these uploads at the end of the application. Please respect the page limitation and the upload requirements stated in the call. Uploads in excess of these limits may not be considered for evaluation.

June 2021

The Novo Nordisk Foundation

The Novo Nordisk Foundation is an independent Danish Foundation with corporate interests. The objective of the Novo Nordisk Foundation is twofold: To provide a stable basis for the commercial and research activities conducted by the companies within the Novo Group and to support scientific and humanitarian purposes.

The vision of the Novo Nordisk Foundation is to contribute significantly to research and development that improves the lives of people and the sustainability of society.