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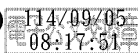
主旨：本會公開徵求115年度「精準物質操控：解碼淨零碳排與精準健康的關鍵機制」構想書，自即日起受理申請，請於114年11月26日前於線上系統送出，逾期不予受理，請查照轉知。

說明：

- 一、本計畫徵求公告請詳閱附件，或至本會網站(動態資訊/計畫徵求專區)或自然科學及永續研究發展處公告網頁下載。有關計畫徵求說明訊息，請參閱公告訊息網頁。
- 二、請循本會「專題研究計畫/(構想書計畫類別)精準物質操控專案計畫」線上申請方式作業，線上繳交送出即可，無需經由申請機構送出，亦無須造冊函送本會。
- 三、構想書經審查獲推薦者，將通知計畫主持人及執行機構提送完整計畫書。本計畫之執行期程預計自115年8月1日起至119年7月31日，採分年核定多年期方式辦理。
- 四、有關系統操作問題，請洽本會資訊系統服務專線，電話：(02)2737-7590、7591、7592。

正本：專題研究計畫受補助單位（共297單位）

副本：本會綜合規劃處、自然處(均含附件)



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主任委員吳誠文



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National Science and Technology Council

2026 "Precise Substance Manipulation: Decoding Key Mechanisms for Net-Zero Carbon Emissions and Precision Health" Call for Proposals

Background and Objectives

In response to the global challenges of climate change and sustainable human health, the "Precise Substance Manipulation: Decoding Key Mechanisms for Net-Zero Carbon Emissions and Precision Health" project has been launched. This project focuses on the precise analysis and manipulation of materials, from the molecular to atomic levels, to develop innovative technologies that effectively reduce carbon emissions and advance precision diagnostics and treatment. With rising global carbon emissions threatening both health and the economy, and an aging population coupled with chronic diseases straining healthcare systems, the urgency of developing and applying these technologies has become increasingly evident.

The project aims to tackle key challenges in achieving net-zero carbon emissions and advancing precision health by leveraging precise substance manipulation technologies. It seeks to explore mechanisms at the atomic and molecular levels and develop innovative approaches for precise manipulation. Key aspects of the project include molecular editing and structural regulation, as well as the design of reaction systems and detection strategies. In the domain of net-zero carbon emissions, the project explores and implements precise manipulation of chemical reaction pathways and material properties, enhancing material performance. It also aims to create advanced analytical methods to thoroughly evaluate catalyst efficiency and reaction control systems. In the domain of precision health, the focus is on identifying molecules critical to human health and applying manipulation techniques for detection and targeted therapies. This also involves using synthetic processes to enhance the efficacy of functional molecules and developing databases to improve or replace existing diagnostic molecular probes, increasing sensitivity and accuracy for early diagnosis and precision treatment.

The project emphasizes interdisciplinary collaboration and the development of innovative solutions for critical unmet needs. Through coordinated efforts, it aims to accelerate scientific and technological progress. In light of uncertainties and potential high risks in technological development, we encourage academia, research institutions, and industry to collaborate on forward-looking innovations. These efforts are expected to yield concrete outcomes in achieving sustainable net-zero carbon emissions and advancing precision health, addressing societal demands and contributing to significant progress in future science and technology.

Research and Development Directions

The project focuses on two main domains:

1. **Efficient Energy Reuse and Negative Carbon Strategy:** This domain includes carbon capture and reuse, affordable high-performance catalytic materials, hydrogen energy, and innovations in high-efficiency energy conversion. The goal is to increase energy reuse efficiency, improve carbon capture effectiveness, and reduce energy consumption, ultimately driving long-term net-zero carbon emissions.
2. **Precision Health Diagnostics and Treatment:** This domain focuses on developing precise methods for disease prevention and treatment. It aims to achieve early diagnosis, prevention, and personalized treatment through highly accurate diagnostic and therapeutic techniques. It also focuses on drug design and development to address individual differences in precision health management and treatment.



Proposal Guidelines

1. **Targeted Objectives and Key Focus Areas:** The overall project proposal should clearly state the main objectives and highlight key challenges, with a focus on innovative solutions. The ultimate goal of the proposal is to address the critical technologies for achieving net-zero carbon emissions and precision health. The project content should include four-year R&D objectives, a comprehensive technical roadmap, domestic and international situation analysis, quantifiable targets, and strategies for achieving these targets.



2. **Innovative Solutions and Feasibility Assessment:** With diverse pathways to achieving net-zero carbon emissions and precision health, we encourage applicants to propose innovative solutions. The proposal should clearly define milestones and include a feasibility assessment. If necessary, multiple R&D approaches can be pursued in parallel.
3. **Industry Collaboration:** The project aims to reduce pathfinding risks for domestic industries by fostering industry partnerships. It encourages collaboration to develop next-generation technologies and boost industry investment in advanced research.
4. **Interdisciplinary Collaboration and Resource Integration:** The formation of interdisciplinary teams involving academia, research institutions, and industry is highly encouraged. Beyond experimental validation, theoretical foundations are also essential for evaluating high-risk technologies and guiding future developments.
5. **International Competitiveness:** The proposal should reflect a strong ambition to achieve international leadership, including publishing in top-tier journals, competing in international contests, and attending global exhibitions. These efforts aim to strengthen Taiwan's technical capabilities and boost its international visibility in related fields.

Proposal Submission



1. Applying institutions and principal investigators (PIs) must adhere to the National Science and Technology Council (NSTC) regulations.
2. The proposal is limited to multi-year integrated research plans, each consisting of 2 to 4 sub-projects (with one led by the project lead). Sub-project PIs must actively participate in the research, and the proposal should clearly define the research topics for each sub-project. The integrated project must have a clearly defined overall objective and be submitted by the project lead's affiliated institution.
3. The annual budget typically ranges from 5 to 10 million NTD, with the final amount contingent on review results and available funding.
4. The application process consists of two stages—"Concept Paper" and "Full Proposal":
 - (1) Concept Paper Stage: The concept paper should be limited to 6 pages (following the



- provided format). Applicants must submit it online through the NSTC system by Nov. 26, 2025. After review, selected teams will be invited to present their proposals.
- (2) Full Proposal Stage: Once the concept paper is approved, the NSTC will notify the applicant's institution to submit a full proposal. The PI must revise the full proposal as needed. The applicant institution must complete the online submission by the specified deadline. The full proposal must adhere to the page limits outlined in the "Proposal Guidelines (Form CM03)."

Review and Funding Approval

1. The review process includes a documentary review followed by a committee evaluation. As this is a special project, there is no appeal process for rejected proposals.
2. The project is structured as a four-year plan, starting from August 1, 2026. Upon approval, multi-year funding will be provided, with annual evaluations to monitor project progress and outcomes. Funding for subsequent years will be contingent on the results of these reviews.
3. Evaluation Criteria:
 - (1) Alignment of the proposal's ambition with the project's goal to address technical challenges.
 - (2) Novelty and excellence in academic research.
 - (3) Feasibility of practical applications.
 - (4) A well-defined technical roadmap.
 - (5) Theoretical foundations of the proposed technologies.
 - (6) Execution capability of the PI.
 - (7) Complementary strengths of team members and their capacity for interdisciplinary integration.
4. Once funding is approved, this project will count toward the project lead's total project quota under NSTC regulations, but it will not count toward the sub-project PIs' quotas.
5. The project lead may lead only one project under this program and cannot serve as a sub-project PI for any other projects in the program.

Project Execution and Evaluation

1. The NSTC will conduct regular evaluations, and the project team must provide progress updates, results, and attend review meetings.
2. The project team must work with the NSTC on reporting outcomes, advancing applications, and facilitating outreach and promotion.
3. If the total program budget for any financial year is not approved or is reduced, the NSTC may adjust the funding accordingly.
4. If performance is unsatisfactory without improvement, funding may be reduced or the project terminated.

Additional Considerations

1. Project contracts, funding usage, extensions, amendments, financial reporting, and report submissions must comply with NSTC regulations.
2. For matters not covered here, please follow NSTC regulations.

Contact

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精準物質操控：解碼淨零碳排與精準健康的關鍵機制 構想書

一、基本資料

申請計畫領域				
<input type="checkbox"/>	高效能源再利用及負碳策略技術			
<input type="checkbox"/>	精準健康診療技術			
計畫主持人				
姓名	職稱	任職機關(含系所)		
共同主持人 (倘欄位不足，請自行增列)				
姓名	職稱	任職機關(含系所)		
計畫名稱				
計畫英文名稱				
計畫執行期限	自民國____年____月____日起至民國____年____月____日			
經費需求 (仟元)	第一年	第二年	第三年	第四年
計畫連絡人	姓名：_____電話：(公)_____(行動)_____			
電子郵件信箱				

二、構想書內容 (以 6 頁為限，字型大小為 12 pt)

1. 中、英文摘要。
2. 選定之重要議題，計畫背景、動機、具體目標以及計畫之重要性 (含相關研究領域評估、預期學術貢獻及產業成果、潛在優勢及國際競爭力等)。
3. 整體計畫之架構。
4. 初步的技術規劃藍圖，以季為單位。
5. 資源整合與團隊組成。

(詳細資料及審查重點敬請參閱徵求公告)



三、申請補助經費

金額單位：新台幣仟元

執行年次	第一年	第二年	第三年	第四年
業務費				
研究人力費				
耗材、物品、圖書及雜項費用				
國外學者來臺費用				
研究設備費				
國外差旅費				
移地研究				
出席國際學術會議				
管理費				
合 計				
博士級研究人力/名				

附註：

1. 業務費為「研究人力費」、「耗材、物品、圖書及雜項費用」、「國外學者來臺費用」個別費用之加總。
2. 研究人力費包含計畫主持人主持費、專任助理人員酬金、兼任助理人員酬金、臨時工資等。
3. 耗材、物品、圖書及雜項費用是與研究計畫直接有關之其他費用等。
4. 研究設備費指執行研究計畫所需單價在新台幣一萬元以上，且使用年限在二年以上與研究計畫直接有關之各項設備。

5. 國外差旅費為移地研究及出席國際學術會議出國二項費用之加總。



6.

四、計畫主持人個人資料、與本申請案相關之代表研究成果及簡述重要貢獻
(著重於研究持續性、過去執行相關計畫的經驗，1 頁為限)。

五、計畫主持人近三年執行國科會及非國科會補助之研究計畫

姓名	於該計畫案擔任 之主要人力角色 (主持人/共同主 持人)	研究計畫名稱	經費來源單位	經費總額	計畫期程

