2021 Application Results for New Grand Challenge Program

A total of 40 Grand Challenge Program applications were received this year (6 from the Division of Mathematics and Physical Sciences; 15 from the Division of Life Sciences; 19 from Major Diseases). Of the 40 applications, 12 were approved during the Second-round Review and Budget Review meetings, including 3 from the Division of Mathematics and Physical Sciences; 3 from the Division of Life Sciences and 6 from Major Diseases. Please refer to the following table for detailed information. Approved projects shall be undertaken only after their budget plans have been officially approved.

A. Division of Mathematics and Physical Sciences (3 Projects)

Project No.	Project Title	(1)Project Director (2)Subproject Director (3)Co-Director	Affiliation	Grant Period
AS-GC-110-01	Diagnosis and Attribution of Air Pollution in Central-Western Taiwan: From Physical and Chemical Mechanism to Mitigation Strategy	(1) Charles C. -K. Chou (3) Yi-Chun Chen (3) Ta-Chih Hsiao (3) Shih-Chun Candice Lung (3) Chuan-Yao Lin	Research Center for Environmental Changes Inst.Environ. Eng., NTU Research Center for Environmental Changes Research Center for Environmental Changes Research Center for Environmental Changes	4+1
AS-GC-110-02	Quantum Photonics "CW" Project: from Fundamental Breakthroughs to Enabling Devices	(1) Shangjr Gwo (3) Wen-Hao Chang	Research Center for Applied Sciences Thematic Center for Quantum Photonics	4+1

Project No.	Project Title	(1) Project Director (2) Subproject Director (3) Co-Director	Affiliation	Grant Period
AS-GC-110-03	Earthquake and tsunami hazard assessment along the Taiwan plate boundary zone using seafloor geodesy	(1) Ya-Ju Hsu (3) Shu-Kun Hsu (3) Horng-Yue Chen (3) Ban-Yuan Kuo (3) Canitano Alexandre (3) Ching-Ren Lin (3) Kate Huihsuan Chen (3) Ryoya Ikuta	Institute of Earth Sciences College of Earth Sciences, National Central University Institute of Earth Sciences Institute of Earth Sciences Institute of Earth Sciences Institute of Earth Sciences Institute of Earth Sciences Department of Earth Sciences, National Taiwan Normal University Department of Geosciences, Shizuoka University	4+1

II. Division of Life Sciences (3 Projects)

Project No.	Project Title	(1)Project Director (2)Subproject Director (3)Co-Director	Affiliation	Grant Period
AS-GC-110-04	Glycoscience on the Inside: Unravelling the Role of Intracellular Glycans and Glycan Binding Proteins	(1) Todd L. Lowary (3) Guang-Chao Chen (3) Chun-Hung Lin (3) Tzu-Ching Meng	Institute of Biological Chemistry Institute of Biological Chemistry Institute of Biological Chemistry Institute of Biological Chemistry	4+1
AS-GC-110-05	Investigate the immunosurveillance network in response to oxidative stress associated diseases using multiplexed single-cell technologies and its translational application multiplexed single-cell technologies and its translational application	(1)Yijuang Chern (3)Ya-Jen Chang (3) Shih-Lei Lai (3) Chia-Wei Li (3) Tai-Ming Ko (3) Kai-Chien Yang	Institute of Biomedical Sciences Institute of Biomedical Sciences Institute of Biomedical Sciences Institute of Biomedical Sciences Institute of Biomedical Sciences Institute of Biomedical Sciences	1+4

| AS-GC-110-06 | From the ground up – deciphering the pathogen, host, and disease suppressive soil interactions involved in Fusarium wilt of banana | (1) Yu-Liang Yang

(3) Yao-Cheng Lin

(3) Yun-Chu Chen

(3) Hsin-Hung Yeh

(3) Ho-Ming Chen | Agricultural Biotechnology Research Center
Agricultural Biotechnology Research Center
Agricultural Biotechnology Research Center
Agricultural Biotechnology Research Center
Agricultural Biotechnology Research Center | 1+4 |

III. Major Diseases (6 Projects)

Project No.	Project Title	(1)Project Director (2)Subproject Director (3)Co-Director	Affiliation	Grant Period
AS-GC-110-MD01	Application of GRC2 recombinant protein to induce 'regenerative macrophage' for tissue repairing and prevention of fibrosis	(1) Shie-Liang Hsieh	Genomics Research Center	4+1
AS-GC-110-MD02	Taiwan Precision Medicine Initiative	(1) Pui-Yan Kwok (2) Jer-Yuarn Wu (2) Chun-Houh Chen (2) Da-Wei Wang	Institute of Biomedical Sciences Institute of Biomedical Sciences Institute of Statistical Science Institute of Information Science	3

AS-GC-110-MD03	Targeting the proximal mechanistic key step of Interleukin-17 receptor B oncogenic signaling for treating pancreatic cancer	(1) Chun-Mei Hu (3) Wen-Hwa Lee (3) Jim-Ming Fang (3) Ying-Ta Wu (3) Yung-Ming Jeng (3) Heng-Hsiung Wu	Genomics Research Center Genomics Research Center Department of Chemistry, NTU Genomics Research Center Department of Pathology and Graduate Institute of Pathology, NTUCM Graduate Institute of Biomedical Science, China Medical University	2+3
AS-GC-110-MD04	Deciphering the molecular basis and functional roles of glycan-based immune checkpoints in neurodegenerative diseases	(1) Takashi ANGATA (3) Yijuang Chern (3) Kuo-I Lin (3) Chun-Hung (Hans) Lin (3) Hung-Chih Kuo	Institute of Biological Chemistry Institute of Biomedical Sciences Genomics Research Center Institute of Biological Chemistry Institute of Cellular and Organismic Biology	2+3
AS-GC-110-MD05	Mechanistic and Translational Studies to Elucidate Tau Transmission and Energy Homeostasis in Prodromal Alzheimer's Disease	(1) Yun-Ru Chen (2) Yun-Ru Chen (2) Yi-Shuian Huang (2) Hung-Chih Kuo (2) Cheng-Ting Chien (2) Yijuang Chern (2) Yung-Feng Liao (2) Bi-Chang Chen	Genomics Research Center Genomics Research Center Institute of Biomedical Sciences Institute of Cellular and Organismic Biology Institute of Molecular Biology Institute of Biomedical Sciences Institute of Cellular and Organismic Biology Research Center for Applied Sciences	1

| AS-GC-110-MD06 | Revealing Environmental Carcinogens Induced Tumorigenesis and Developing Curative Treatments for Never-Smoking Lung Adenocarcinoma in Taiwan | (1) Hsuan-Yu Chen
(3) Chien-Jen Chen
(3) Yu-Ju Chen
(3) Huei-Wen Chen
(3) Mei-Hsuan Lee
(3) Sheng-Fang Su | Institute of Statistical Science
Genomics Research Center
Institute of Chemistry
Graduate Institute of Toxicology, NTUCM
Institute of Clinical Medicine, NYMMC
Institute of Oncology, NTUCM | 1 |