

470

ADMIN

No. BT/PR25024/NER/95/961/2017
GOVERNMENT OF INDIA
MINISTRY OF SCIENCE & TECHNOLOGY
DEPARTMENT OF BIOTECHNOLOGY
NER-BPMC

App. No.-BMB/2017/33

Block 2, 6-8th Floors
CGO Complex, Lodhi Road,
New Delhi- 110 003

Dated: 20/02/2019

ORDER

Sanction of the President is hereby accorded, under Rule 18 of the Delegation of Financial Powers Rules, 1978, for the implementation of the project entitled: "**STUDY OF WATER-SOLUBLE (C70- and C60-) FULLERENE-PORPHYRIN DYADS AS INHIBITORS OF HUMAN IMMUNODEFICIENCY VIRUS (HIV): SYNTHESIS, CHARACTERIZATION AND ANTI-HIV ACTIVITY**" for a period of 3 Year 0 Month at a total cost of Rs. **7999600** (Rupees Seventy Nine Lakhs Ninety Nine Thousand Six Hundred Only) on the terms and conditions detailed here under:-

2 The Project :

2.1 Title : "**STUDY OF WATER-SOLUBLE (C70- and C60-) FULLERENE-PORPHYRIN DYADS AS INHIBITORS OF HUMAN IMMUNODEFICIENCY VIRUS (HIV): SYNTHESIS, CHARACTERIZATION AND ANTI-HIV ACTIVITY**"

Details of the Investigators:

2.2

Project Coordinator

Dr. Devashish Sengupta

Asst Professor

Chemistry

Assam (Central) University, Silchar

Department of Chemistry, Assam University, Dorgakona Silchar Assam,
Silchar, Assam, 788011

Principal Investigators:

Dr. Devashish Sengupta

Asst Professor

Chemistry

Assam (Central) University, Silchar

Department of Chemistry, Assam

University, Dorgakona Silchar

Assam, Silchar, Assam, 788011

Dr. Ritu Gaur

Associate Professor

Faculty of Life Faculty of Life

Sciences and Biote

South Asian University

Akbar Bhawan, Chanakyapuri, New

Vandana

Delhi, New Delhi, Delhi, 110021

CO-PI:

Prof. Samita Basu

Senior Professor Head

Chemical Sciences Division

Saha Institute of Nuclear Physics

Block - AF, Sector - 1, Bidhan nagar, Kolkata -

700064, West Bengal

2.3 Objectives:

Overall Objectives:

1. Design and synthesis of the target F-P dyads, isolation and purification by various chromatographic techniques including flash chromatography.
2. Characterization of the various precursors by ¹H NMR, ¹³C (where possible), gradient 2D NMR techniques like COSY, NOESY, HSQC, HMBC, etc., UV-Vis-NIR spectroscopy, Steady-state and Time-resolved (if possible) fluorescence spectroscopy, Mass Spectrometry involving MALDI-TOF, LS/MS and ESI and elemental analysis where applicable.
3. Study of cell viability, cytotoxicity, DNA binding and damage properties by known MTT assays non cancer cell lines and gel electrophoresis methods with CT DNA and or pUC DNA will be conducted at Assam University for the establishment of the basic potentials of DNA binding/cleavage abilities and toxicity of the new compounds under light and dark conditions.
4. To study the SAR of the F-P derivatives with reference to their role as anti-HIV agents and/or PDT agents.
5. Cytotoxicity Assay
6. Gene Expression analysis
7. Anti-viral Activity Assay
8. Virus Infectivity Assay
9. HIV-Entry Assay
10. Multi-cycle replication assay
11. Imaging Studies

Institute wise Objectives:

Assam (Central) University, Silchar

1. Design and synthesis of the target F-P dyads, isolation and purification by various chromatographic techniques including flash chromatography.
2. Characterization of the various precursors by ¹H NMR, ¹³C (where possible), gradient 2D NMR techniques like COSY, NOESY, HSQC, HMBC, etc., UV-Vis-NIR spectroscopy, Steady-state and Time-resolved (if possible) fluorescence spectroscopy, Mass Spectrometry involving MALDI-TOF, LS/MS and ESI and elemental analysis where applicable.
3. Study of cell viability, cytotoxicity, DNA binding and damage properties by known MTT assays non cancer cell lines and gel electrophoresis methods with CT DNA and or pUC DNA will be conducted at Assam University for the establishment of the basic potentials of DNA binding/cleavage abilities and toxicity of the new compounds under light and dark conditions.
4. To study the SAR of the F-P derivatives with reference to their role as anti-HIV agents and/or PDT agents.

South Asian University

1. Cytotoxicity Assay
2. Gene Expression analysis
3. Anti-viral Activity Assay
4. Virus Infectivity Assay
5. HIV-Entry Assay
6. Multi-cycle replication assay
7. Imaging Studies

2.4 Time Schedule:

The duration of the project is 3 Year 0 Month from the date of this sanction order.

2.5 Project Cost:

The total cost of the project is Rs. **7999600/-** (Rupees Seventy Nine Lakhs Ninety Nine Thousand Six Hundred Only) as per details given below :

Vandana

Institute	Year I	Year II	Year III	Total Cost(Rs.)
1. Assam (Central) University, Silchar	2520000	1130000	1169600	4819600
2. South Asian University	1100000	1040000	1040000	3180000
Total (Rs.)	3620000	2170000	2209600	7999600

Institute wise details are:

Budget Head	Year I	Year II	Year III	Total(Rs.)
1. Assam (Central) University, Silchar				
Equipment	1290000.00			1290000.00
Manpower	330000.00	330000.00	369600.00	1029600.00
Overhead	100000.00	100000.00	100000.00	300000.00
Contingency	50000.00	50000.00	50000.00	150000.00
Travel	50000.00	50000.00	50000.00	150000.00
Consumables	700000.00	600000.00	600000.00	1900000.00
Total (Rs.)	2520000.00	1130000.00	1169600.00	4819600.00
2. South Asian University				
Manpower	0.00	0.00	0.00	0.00
Overhead	100000.00	40000.00	40000.00	180000.00
Travel	50000.00	50000.00	50000.00	150000.00
Contingency	50000.00	50000.00	50000.00	150000.00
Consumables	900000.00	900000.00	900000.00	2700000.00
Total (Rs.)	1100000.00	1040000.00	1040000.00	3180000.00

2.6 Equipment:

The details of the equipment sanctioned for the implementation of the project at Annexure-I

2.7 Manpower:

The details of the manpower sanctioned for the implementation of the project at Annexure-II

3. Head of Account:

The Non-Recurring expenditure involved is debitable to:

Demand No. 85	Department of Biotechnology
3425	Other Scientific Research 2018-2019
3425.60	Others (Sub Major Head)
3425.60.200	Assistance to other Scientific Bodies (Minor Head)
3425.60.200.29	Biotechnology Research and Development
3425.60.200.29.17	Assistance for Research and Development
3425.60.200.29.17.35	Grants for creation of capital assets

The **Recurring** expenditure involved is debitable to:

Demand No. 85	Department of Biotechnology
3425	Other Scientific Research 2018-2019
3425.60	Others (Sub Major Head)
3425.60.200	Assistance to other Scientific Bodies (Minor Head)
3425.60.200.29	Biotechnology Research and Development
3425.60.200.29.17	Assistance for Research and Development
3425.60.200.29.17.31	Grants-in-Aid General

4. Terms & Conditions:

Additional Terms and Conditions, specific for Twinning R and D program for NER

- a. Both NER and Rest of India (RoI), Institutions scientists should work together for the objectives stated in the sanction of the project and any deviation from this would attract closure of the project at any point of time.
- b. In the project review meetings, both the PIs from NER and RoI Institutions should participate and make presentation.
- c. The outcomes of the project such as research papers, patents, copy rights etc. should be made jointly.
- d. The NER Scientists are to be trained at the collaborating institute appropriately to empower the NER Scientists.
- e. The project personal such as Research Associate, JRF or SRF, Research Assistant are also to be trained at least once in the collaborating national institute.
- f. The collaborating institute scientist should visit NER institutions more frequently to guide NER scientists in design and conduct of experiments.

4.1 The other terms and conditions governing this sanction are attached at Annexure- III.

- 4.2A Memorandum of Agreement (MoA) will be signed between the Department of Biotechnology and the grantee institution on Non-Judicial stamp paper Rs. 100/- in the enclosed format and the second release/installment will be made only after signing of MoA by the grantee institutions and its acceptance by DBT. In case of NGO or Private Institution, MOA signed is mandatory first release. A format of the MoA is enclosed in Annexure-IV
- 4.3 The Institute/Agency will keep the whole of the grant in a Bank Account earning interest, and the interest so earned should be reported to DBT in the Utilisation Certificate and Statement of Expenditure. The Interest so earned will be treated as created to the institute/Agency and shall be adjusted towards further installment of the grant and or at the time of Final Settlement of Accounts.
- 5.No International Travel will be undertaken from the sanctioned project grant unless specified otherwise.
- 6.The President, South Asian University, New Delhi, Delhi and The Registrar, Assam (Central) University, Silchar, Silchar, Assam would be responsible for submission of Statements of Expenditure (SoE), utilization certificates (UC), Assets Certificates, Manpower staffing & expenditure details in prescribed DBT formats to DBT in respect of grants released in this project from time to time.
- 7.PI's of DBT sponsored projects can consider appointment of JRF from Category-II merit list of DBT-BET exam so that candidates can be paid fellowships at par with NET/GATE/BET qualified candidates as per DST OM No. A.SR/S9/Z-09/2012 dated on 21 Oct 2014. However, there is no compulsion on PI's to select candidates for JRF in their projects from Category-II of DBT-BET.
- 8.As per Rule 236 (1) of GFR 2017, the accounts of all Grantee Institutions or Organisations shall be open to inspection by the sanctioning authority and audit, both by the Comptroller and Auditor General of India under the provision of CAG(DPC) Act 1971 and internal audit by the Principal Accounts Office of the Ministry or Department, whenever the Institution or Organisation is called upon to do so.
- 9.If the Research Project involves biological resource, the obligations under the Biological Diversity Act 2002 as applicable shall be complied with by the Project Investigator, the details of such obligations can be accessed at www.nbaindia.org
- 10.This issues under the power delegated to this Department and with the concurrence of IFD vide their SAN No. **102/IFD/SAN/2513/2018-2019** dated **September, 21 2018**.
- 11.This sanction order has been noted at serial no. 470 in the Register of Grants.

Vaishali

(Dr. Vaishali Panjabi)
Scientist 'E'

To,
The Pay & Accounts Officer,
Department of Biotechnology,
New Delhi – 110 003.

Copy to:

- 1 The Principal Director of Audit (Scientific Departments), DACR Building, New Delhi- 110 002.
- 2 Devashish Sengupta(Project Co-ordinator), Dargakona, Silchar-788011, Assam, India
- 3 The President, South Asian University, Akbar Bhawan, Chanakyapuri, New Delhi - 110021, Delhi
- 4 The Registrar, Assam (Central) University, Silchar, DARGAKONAH, Silchar - 788011, Assam
- 5 Dr. Devashish Sengupta, Asst Professor, Chemistry, Assam (Central) University, Silchar, Department of Chemistry, Assam University, Dorgakona Silchar Assam, Silchar - 788011, Assam
- 6 Dr. Ritu Gaur, Associate Professor, Faculty of Life Faculty of Life Sciences and Biote, South Asian University, Akbar Bhawan, Chanakyapuri, New Delhi, New Delhi - 110021, Delhi
- 7 Prof. Samita Basu, Senior Professor Head, Chemical Sciences Division, Saha Institute of Nuclear Physics, Block - AF, Sector - 1, Bidhan nagar, Kolkata - 700064, West Bengal
- 8 Cash Section, DBT (2 copies).
- 9 Sanction Folder.
- 10 File Copy.

Vaishali

**(Dr. Vaishali Panjabi)
Scientist 'E'**

Annexure -I

Details of the Equipment sanctioned for the implementation of the project titled "**STUDY OF WATER-SOLUBLE (C70- and C60-) FULLERENE-PORPHYRIN DYADS AS INHIBITORS OF HUMAN IMMUNODEFICIENCY VIRUS (HIV): SYNTHESIS, CHARACTERIZATION AND ANTI-HIV ACTIVITY**":

Assam (Central) University, Silchar			
SNo.	Name of Equipment	No.	Cost(Rs.)
1.	Biological Safety Cabinet (780 mm x 1200 mm x 465 mm) NFS/ANSI, UL certification, Ventilation System, Exhaust/Inflow Air volume CFM(m ³ /h): 342(582), H14 HEPA EN Filter	1	450000.00
2.	CO2 Incubator, 184 L, Temperature +5 - +50, UL, cUL, CE, HEPA filte, Stainless Steel construction	1	330000.00
3.	5 KVA Power Backup with Batteries	1	150000.00
4.	Dehumidifier 150 L per day at 30 deg C (75 L per day at 23 deg C)	1	91000.00
5.	Microcentrifuge	1	26000.00
6.	Ultra Sonicator	1	36000.00
7.	Heating Device with magnetic stirrer, heating upto 500 degrees with 1500 rpm stirrer	2	80000.00
8.	Variable Volume Micropipette 0.5-2 μ L = 2 No., 1-10 μ L = 2 No., 2-20 μ L = 2 No., 10-100 μ L = 2 No., 20-200 μ L = 2 No., 100-1000 μ L = 2 No.	10	45000.00
9.	pH Meter	1	63000.00
10.	Vacuum Pump oil Free	1	19000.00
Total			1290000.00

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(Dr. Vaishali Panjabi)
Scientist 'E'

Annexure -II

Details of the manpower sanctioned for the implementation of the project titled "**STUDY OF WATER-SOLUBLE (C70- and C60-) FULLERENE-PORPHYRIN DYADS AS INHIBITORS OF HUMAN IMMUNODEFICIENCY VIRUS (HIV): SYNTHESIS, CHARACTERIZATION AND ANTI-HIV ACTIVITY**";

Head	No. of Position	Year I	Year II	Year III	Total (Rs.)
1. Assam (Central) University, Silchar					
Junior Research Fellow JRF @ 25000 pm + 10% HRA (Synthetic Organic Chemistry)	1	330000.00	330000.00		660000.00
Senior Research Fellow SRF @ 28000 pm + 10% HRA (Synthetic Organic Chemistry)	1			369600.00	369600.00
Total (Rs.)		330000.00	330000.00	369600.00	1029600.00

Emoluments detail of research personal(s) mentioned in table(s) of Annexure-II shall be applicable only if candidate(s) met educational qualification and eligibility criteria as per DST OM No.SR/S9/Z-09/2012 dated 21.10.2014.

Vaishali
(Dr. Vaishali Panjabi)
Scientist 'E'

