3.1.1

Grants received from Government and non-governmental agencies for research projects / endowments in the institution during the year (INR in Lakhs)

&

3.1.3

Number of departments having Research projects funded by government and non government agencies during the year

2023-2024

Cont: 8977014929

PRINCETON COLLEGE OF PHARMACY

(Affiliated to JNTUH, Approved by PCI, New Delhi & Accredited by NAAC)
Chowdariguda(V), Korremula, Ghatkesar (M), Medchal- Malkajgiri (Dist.) - 500 088
E mail: princeton.pharmacy@gmail.com, Website: pcop.ac.in

S.NO	Name of the Project/ Endowments, Chairs	Name of the Principal Investigator/Co-investivator	Department of Principal Investigator	Amount Sanctioned	Duration of the project	Name of the Funding Agency	Type (Government/ non-Government)
1	Uplc-Based Analytical Method Development And Validation For Antiviral Drugs: A Systematic Approach To Impurity Detection And Quantification	Dr. L HARIKIRAN, INVESTIGATOR Mrs. KONDLA USHA, CO-INVESTIGATOR	PHARMACEUTICAL ANALYSIS	70,000/-	1 YEARS	BELL PHARMACEUTICALS	NON-GOVERNMENT
2	Bioavailability enhancement of a BCS Class-II drug by various techniques	Dr. L HARIKIRAN, INVESTIGATOR VANGALA LAVANYA, CO-INVESTIGATOR	PHARMACEUTICS	RS.80,000/-		BELL PHARMACEUTICALS	NON-GOVERNMENT

Cont: 8977014929

PRINCETON COLLEGE OF PHARMACY

(Affiliated to JNTUH, Approved by PCI, New Delhi & Accredited by NAAC)
Chowdariguda(V), Korremula, Ghatkesar (M), Medchal- Malkajgiri (Dist.) - 500 088
E mail: princeton.pharmacy@gmail.com, Website: pcop.ac.in

Date: 25/07/2023

To
The Managing Director,
Bell Pharmaceuticals,
Jana Priya colony, LB Nagar
Hyderabad-500 070.

Subject: Sponsorship for funded project – Dated: 25/07/2023

Dear Sir,

Best wishes from Princeton College of Pharmacy

Princeton College of Pharmacy was established in the year 2007. PCOP is approved by AICTE New Delhi, affiliated to JNTU, Hyderabad and accredited by National Board of Accreditation (NBA). PCOP is an ISO 9001:2008 certified institution. The faculties of various departments are actively pursuing research in their respective technical departments under R&D wing of PCOP.
VANGALA LAVANYA, Associate Professor, Department of PHARMACEUTICS, is the Principal investigator for this proposed work.

We request your kind cooperation and financial aid of INR. 2,50,000 (Two lakhs Fifty thousand Rupees Only) in the **"Bioavailability enhancement of a BCS Class-II drug by various techniques".** Herewith we have enclosed the budget proposal for the project. Our faculty will contact you in person along with this letter.

Princeton College of Pharmacy is expecting positive response from you.

Principal Investigator

Dept. of Pharmaceutics

Principal

PRINCIPAL
Princeton College of Pharm
Korremula Vill. Vijayapuri C
Ghatkesar Mdl. Medchal Dist. Telangana

Cont: 8977014929

PRINCETON COLLEGE OF PHARMACY

(Affiliated to JNTUH, Approved by PCI, New Delhi & Accredited by NAAC)

Chowdariguda(V), Korremula, Ghatkesar (M), Medchal- Malkajgiri (Dist.) - 500 088

E mail: princeton.pharmacy@gmail.com, Website: pcop.ac.in

Date: 25/07/2023

BIOAVAILABILITY ENHANCEMENT OF A BCS CLASS-II DRUG BY VARIOUS TECHNIQUES.

Introduction:

Orally administered drugs completely absorb only when they show fair solubility in gastric medium and show good bioavailability. The solubility properties of drugs play an important role in the process of formulation development. The objective of the present study is to improve the solubility and dissolution rate of BCS class-II drug by using Solid dispersion and Complexation techniques.

Scope of work

The bioavailability of a drug is controlled by three principal factors6. These variants are namely, Rate and extent of release of the drug from the dosage form, Subsequent absorption from the solution state Biotransformation during the process of absorption. A Class II drug will typically exhibit dissolution rate limited absorption and a Class IV drug will typically exhibit permeation rate limited absorption. Hence, two areas of pharmaceutical research focus on improving the oral bioavailability of an API. Enhancing solubility and dissolution rate of poorly water-soluble drugs, Enhancing permeability of poorly permeable drugs.

Solubility Enhancement of BCS Class II Drugs

The solubility of a solute is the maximum quantity of solute that can dissolve in a certain quantity of solvent or quantity of solution at a specified temperature. Various techniques are available to improve the solubility of poorly soluble drugs. These techniques can be categorized in three basic approaches

- Traditional Techniques
- Newer and Novel Techniques
- Solid Dispersion Technique

Cont: 8977014929

PRINCETON COLLEGE OF PHARMACY

(Affiliated to JNTUH, Approved by PCI, New Delhi & Accredited by NAAC)

Chowdariguda(V), Korremula, Ghatkesar (M), Medchal- Malkajgiri (Dist.) - 500 088

E mail: princeton.pharmacy@gmail.com, Website: pcop.ac.in

Professional Fees

Our Lump Sum professional fees for carrying out the above the scope of work will be INR.2,10,000 (Two lakhs ten thousand Rupees only)

1.0 Terms of Payment

S. No.	Mode of payment	Amount (INR)
1.	Term-1 (Work order& Analysis)	Rs.83,000/-
2.	Term-2(Modeling and Design)	Rs.83,000/-
3.	Term-3(Analysing, Machining and Testing and Delivery)	Rs.84,000
	Total	Rs.2,50,000/-

Kindly acknowledge the receipt of this proposal and looking forward to get the work order.

Principal Investigator

Cont: 8977014929

PRINCETON COLLEGE OF PHARMACY

(Affiliated to JNTUH, Approved by PCI, New Delhi & Accredited by NAAC)
Chowdariguda(V), Korremula, Ghatkesar (M), Medchal- Malkajgiri (Dist.) - 500 088
E mail: princeton.pharmacy@gmail.com, Website: pcop.ac.in

Date: 23/10/2023

To
The Managing Director,

Bell Pharmaceuticals,

Jana Priya colony, LB Nagar

Hyderabad-500 070.

Project: Work order for **"Bioavailability enhancement of a BCS Class-II drug by various techniques".**

Ref: DP/WO/PCOP/PHARMACY/2023-24/01 Dated 23/10/2023.

Dear Sir,

As per your work order and subsequent discussions with principal investigator, I request you to kindly release the following bill amount.

Bill – 1		
S. No.	**Mode of payment**	**Amount (INR)**
1.	Term-1 (Work order& Analysis)	Rs.83,000/-
	Total	**Rs.83,000/-**

Thanking You.

Principal Investigator

Principal

Cont: 8977014929

PRINCETON COLLEGE OF PHARMACY

(Affiliated to JNTUH, Approved by PCI, New Delhi & Accredited by NAAC)
Chowdariguda(V), Korremula, Ghatkesar (M), Medchal- Malkajgiri (Dist.) - 500 088
E mail: princeton.pharmacy@gmail.com, Website: pcop.ac.in

Date: 26/11/2023

To
The Managing Director,

Bell Pharmaceuticals,

Jana Priya colony, LB Nagar

Hyderabad-500 070.

Project: Work order for **"Bioavailability enhancement of a BCS Class-II drug by various techniques".**

Ref: DP/WO/PCOP/PHARMACY/2023-24/01 Dated 23/10/2023.

Dear Sir,

As per your work order and subsequent discussions with principal Investigator, I request you to kindly release the following bill amount.

Bill – 2		
S. No.	**Mode of payment**	**Amount (INR)**
1.	Term-2(Modeling and Design)	Rs.83,000/-
	Total	**Rs.83,000/-**

Thanking You.

Principal Investigator

Principal

Cont: 8977014929

PRINCETON COLLEGE OF PHARMACY

(Affiliated to JNTUH, Approved by PCI, New Delhi & Accredited by NAAC)
Chowdariguda(V), Korremula, Ghatkesar (M), Medchal- Malkajgiri (Dist.) - 500 088
E mail: princeton.pharmacy@gmail.com, Website: pcop.ac.in

Date: 18/03/2024

To
The Managing Director,
Bell Pharmaceuticals,
Jana Priya colony, LB Nagar
Hyderabad-500 070.

Project: Work order for **"Bioavailability enhancement of a BCS Class-II drug by various techniques".**

Ref: DP/WO/PCOP/PHARMACY/2023-24/01 Dated 23/10/2023.

Dear Sir,

As per your work order and subsequent discussions with principal Investigator, I request you to kindly release the following bill amount.

Bill – 3		
S. No.	**Mode of payment**	**Amount (INR)**
1.	Term-3 (Fabrication, Machining and Testing and Delivery)	Rs.83,000/-
	Total	**Rs.83,000/-**

Thanking You.

Principal Investigator **Principal**

Cont: 8977014929

PRINCETON COLLEGE OF PHARMACY

(Affiliated to JNTUH, Approved by PCI, New Delhi & Accredited by NAAC)
Chowdariguda(V), Korremula, Ghatkesar (M), Medchal- Malkajgiri (Dist.) - 500 088
E mail: princeton.pharmacy@gmail.com, Website: pcop.ac.in

GRANT UTILIZATION CERTIFICATE

Date: 25/06/2024

This is to certify that the grant of Rs. 2,10,000 (Rupees Two lakhs ten thousand rupees only) from **Bell Pharmaceuticals** as per the following installments was received by Princeton College of Pharmacy, Chowdaryguda, Ghatkesar for the project **"Bioavailability enhancement of a BCS Class-II drug by various techniques"** via electronic money transfer NEFT or Cheque to institute SBI & HDFC bank account (As per Bank account details provided by us to Bell Pharmaceuticals.)

Name of the Company	Term	Proposed Amount	Released Amount
Bell Pharmaceuticals	1	83,000	70,000
	2	83,000	70,000
	3	84,000	70,000
Total Amount		**2,50,000**	**2,10,000**

Principal Investigator

Auditor

Principal

Letter of Acceptance

Date: 21/10/2023

To
The Principal,
Princeton College of Pharmacy,
Narapally, Chowdaryguda,
Secunderabad-500 088.

Ref: Sponsorship for Project Dated: 25/07/2023

Subject: Acceptance of Financial aid for the project **"Bioavailability enhancement of a BCS Class-II drug by various techniques".**

Dear Sir,
Best wishes from Bell Pharmaceuticals, Habsiguda, Hyderabad.
Our staff and officials have undergone the scope of work for the proposed project. We extend our full support to carry out this research work. In this regard, we are glad to sponsor your project **"Bioavailability enhancement of a BCS Class-II drug by various techniques"** with INR. 2,10,000 (Two lakhs Ten Thousand rupees only)

Managing Director
(Bell Pharmaceuticals)

Authorized Signatory

BELL PHARMACEUTICALS & COSMETICS PVT. LTD. Hyd

31/10/2023

Work Order

Date: 02/10/2023

To
The Principal,
Princeton College of Pharmacy,
Narapally, Chowdaryguda,
Secunderabad- 500 088.

Ref: Sponsorship for funded project Dated: 25/07/2023

Subject: Release of Work order for the project **"Bioavailability enhancement of a BCS Class-II drug by various techniques"**

Dear Sir,
We have undergone the proposed project with our senior professionals. We extend our full support to carry out this research work. In this regard, we are glad to release the work order for the project **"Bioavailability enhancement of a BCS Class-II drug by various techniques".**
From today onwards the following terms of payment will follow as per the budget proposal to complete the project.

S. No.	Mode of payment	Amount (INR)
1.	Term-1 (Work order& Analysis)	Rs.70,000
2.	Term-2(Modeling and Design)	Rs.70,000
3.	Term-3 (Fabrication, Machining and Testing and Delivery)	Rs.70,000
	Total	Rs.2,10,000

Best wishes from Bell Pharmaceuticals, Habsiguda.

Managing Director
(Bell Pharmaceuticals)

Authorized Signatory

Cont: 8977014929

PRINCETON COLLEGE OF PHARMACY

(Affiliated to JNTUH, Approved by PCI, New Delhi & Accredited by NAAC)
Chowdariguda(V), Korremula, Ghatkesar (M), Medchal- Malkajgiri (Dist.) - 500 088
E mail: princeton.pharmacy@gmail.com, Website: pcop.ac.in

Date: 20/08/2023

To
The Managing Director,
Bell Pharmaceuticals,
Jana Priya colony, LB Nagar
Hyderabad-500 070.

Subject: Sponsorship for funded project – Dated: 20/08/2023

Dear Sir,

Best wishes from Princeton College of Pharmacy

Princeton College of Pharmacy was established in the year 2007. PCOP is approved by AICTE New Delhi, affiliated to JNTU, Hyderabad and accredited by National Board of Accreditation (NBA). PCOP is an ISO 9001:2008 certified institution. The faculties of various departments are actively pursuing research in their respective technical departments under R&D wing of PCOP.
USHA KONDLA, Professor, Department of PHARMACEUTICAL ANALYSIS, is the principal investigator for this proposed work.

We request your kind cooperation and financial aid of INR. 2,80,000 (Two lakhs eighty thousand Rupees Only) in the **"UPLC-BASED ANALYTICAL METHOD DEVELOPMENT AND VALIDATION FOR ANTIVIRAL DRUGS: A SYSTEMATIC APPROACH TO IMPURITY DETECTION AND QUANTIFICATION".** Herewith we have enclosed the budget proposal for the project. Our faculty will contact you in person along with this letter.

Princeton College of Pharmacy is expecting positive response from you.

Usha.K

Principal Investigator

Dept. of Pharmaceutical Analysis

Principal

PRINCIPAL
Princeton College of Pharm
Korremula Vill, Vijayapuri C
...ar Mdl, Medchal Dist, T...

Cont: 8977014929

PRINCETON COLLEGE OF PHARMACY

(Affiliated to JNTUH, Approved by PCI, New Delhi & Accredited by NAAC)

Chowdariguda(V), Korremula, Ghatkesar (M), Medchal- Malkajgiri (Dist.) - 500 088

E mail: princeton.pharmacy@gmail.com, Website: pcop.ac.in

Date: 20/08/2023

UPLC-BASED ANALYTICAL METHOD DEVELOPMENT AND VALIDATION FOR ANTIVIRAL DRUGS: A SYSTEMATIC APPROACH TO IMPURITY DETECTION AND QUANTIFICATION.

Introduction:

Impurity Analysis Impurity, defined by the United States Pharmacopeial (USP), as "any component of a drug substance that is not the chemical entity defined as the drug substance and in addition, for a drug product, any component that is not a formulation ingredient". Impurities in drug substances (i.e., active pharmaceutical ingredient, API) or drug products can arise due to synthetic/manufacturing processes, degradation, storage conditions, containers, excipients, or contamination. They can be identified or unidentified, volatile or non-volatile, organic or inorganic species. Since different regulatory requirements and management strategies are required to be established and complied with, sources of impurities shall be carefully classified before taking subsequent steps; for instance, to distinguish an impurity that is derived from API alone or derived from interaction products of API-excipient, excipient-excipient, or API-residual impurities existing in excipients.

Classification of impurities

According to the definitions of the International Council for Harmonization (ICH), Food and Drug Administration (FDA), and USP, impurities are classified into DRIs, PRIs, residual solvents, and heavy metals. A detailed schematic representation of the classification of impurities is displayed in Figure 1 [1, 2, 7]. Majorly API related impurities are categorized into two classes. The first class of API-related impurities is generated by the degradation of API itself under specific storage conditions, e.g., oxidation, dehydration, carbon dioxide removal, etc. The second class is occurred due to the interaction between API and excipients, containers, or residual impurities in excipients, reagents, or solvents [8, 9]. API-related impurities are potentially genotoxic, mutagenic, and carcinogenic risk due to their structure-activity relationship (SAR). Regardless of the classes of impurities, the presence of impurities may potentially affect the quality, safety, and efficacy of drug products. Therefore, studies of impurities are essential in developing APIs and drug products.

Cont: 8977014929

PRINCETON COLLEGE OF PHARMACY

(Affiliated to JNTUH, Approved by PCI, New Delhi & Accredited by NAAC)

Chowdariguda(V), Korremula, Ghatkesar (M), Medchal- Malkajgiri (Dist.) - 500 088

E mail: princeton.pharmacy@gmail.com, Website: pcop.ac.in

Scope of work

Analytical Quality by Design Approach in PharmaceuticalsQuality by Design (QbD) is well established in the pharmaceutical industry for manufacturing processes for pharmaceutical development and ICH for development and manufacture of drug substances). QbD is "a systematic approach to development that begins with predefined objectives and emphasizes understanding andcontrol, based on sound science and quality risk management"[13]. The outcome of using QbD concepts is a well-understood product and process that consistently delivers itsintended performance. The knowledge obtained during development may support the establishment of a design space and determine suitable process controls.

Professional Fees

Our Lump Sum professional fees for carrying out the above the scope of work will be INR.2,40,000 (Two lakhs forty thousand Rupees only)

1.0 Terms of Payment

S. No.	Mode of payment	Amount (INR)
1.	Term-1 (Work order& Analysis)	Rs.93,000/-
2.	Term-2(Modeling and Design)	Rs.93,000/-
3.	Term-3(Analysing, Machining and Testing and Delivery)	Rs.94,000/-
	Total	Rs.2,79,000/-

Kindly acknowledge the receipt of this proposal and looking forward to get the work order.

usha.K

Principal Investigator

Cont: 8977014929

PRINCETON COLLEGE OF PHARMACY

(Affiliated to JNTUH, Approved by PCI, New Delhi & Accredited by NAAC)
Chowdariguda(V), Korremula, Ghatkesar (M), Medchal- Malkajgiri (Dist.) - 500 088
E mail: princeton.pharmacy@gmail.com, Website: pcop.ac.in

Date: 28/09/2023

To
The Managing Director,
Bell Pharmaceuticals,
Jana Priya colony, LB Nagar
Hyderabad-500 070.

Project: Work order for **"Uplc-Based Analytical Method Development And Validation For Antiviral Drugs: A Systematic Approach To Impurity Detection And Quantification".**

Ref: DP/WO/PCOP/PHARMACY/2023-24/01 Dated 28/09/2023.

Dear Sir,

As per your work order and subsequent discussions with principal investigator, I request you to kindly release the following bill amount.

Bill - 1		
S. No.	**Mode of payment**	**Amount (INR)**
1.	Term-1 (Work order& Analysis)	Rs.93,000/-
	Total	**Rs.93,000/-**

Thanking You.

Usha.K

Principal Investigator

Principal

PRINCIPAL
Princeton College of Pharm
Korremula Vill, Vijayapuri C
Ghatkesar Mdl, Medchal Dist, Te

Cont: 8977014929

PRINCETON COLLEGE OF PHARMACY

(Affiliated to JNTUH, Approved by PCI, New Delhi & Accredited by NAAC)
Chowdariguda(V), Korremula, Ghatkesar (M), Medchal- Malkajgiri (Dist.) - 500 088
E mail: princeton.pharmacy@gmail.com, Website: pcop.ac.in

Date: 26/10/2023

To
The Managing Director,
Bell Pharmaceuticals,
Jana Priya colony, LB Nagar
Hyderabad-500 070.

Project: Work order for **"Uplc-Based Analytical Method Development And Validation For Antiviral Drugs: A Systematic Approach To Impurity Detection And Quantification".**

Ref: DP/WO/PCOP/PHARMACY/2023-24/01 Dated 28/09/2023.

Dear Sir,

As per your work order and subsequent discussions with principal Investigator, I request you to kindly release the following bill amount.

Bill - 2		
S. No.	**Mode of payment**	**Amount (INR)**
1.	Term-2(Modeling and Design)	Rs.94,000/-
	Total	**Rs.93,000/-**

Thanking You.

usha.K
Principal Investigator

Principal

PRINCIPAL
Princeton College of Pharm
Korremula Vill, Vijayapuri C
Ghatkesar Mdl Medchal Dist, T

Cont: 8977014929

PRINCETON COLLEGE OF PHARMACY

(Affiliated to JNTUH, Approved by PCI, New Delhi & Accredited by NAAC)
Chowdariguda(V), Korremula, Ghatkesar (M), Medchal- Malkajgiri (Dist.) - 500 088
E mail: princeton.pharmacy@gmail.com, Website: pcop.ac.in

GRANT UTILIZATION CERTIFICATE

Date: 25/05/2024

This is to certify that the grant of Rs. 2,40,000 (Rupees Two lakhs forty thousand rupees only) from **Bell Pharmaceuticals** as per the following installments was received by Princeton College of Pharmacy, Chowdaryguda, Ghatkesar for the project **"Uplc-Based Analytical Method Development And Validation For Antiviral Drugs: A Systematic Approach To Impurity Detection And Quantification""**
via electronic money transfer NEFT or cheque to institute SBI & HDFC bank account (As per Bank account details provided by us to Bell Pharmaceuticals.)

Name of the Company	Term	Proposed Amount	Released Amount
Bell Pharmaceuticals	1	93,000	80,000
	2	93,000	80,000
	3	94,000	80,000
Total Amount			**2,40,000**

Usha K

Principal Investigator

Auditor

Principal

PRINCIPAL
Princeton College of Pharm
Korremula Vill, Vijayapuri C
Mdl Medchal Dist, T

Letter of Acceptance

Date: 25/09/2023

To
The Principal,
Princeton College of Pharmacy,
Narapally, Chowdaryguda,
Secunderabad-500 088.

Ref: Sponsorship for Project Dated: 20/08/2023

Subject: Acceptance of Financial aid for the project **"Uplc-Based Analytical Method Development And Validation For Antiviral Drugs: A Systematic Approach To Impurity Detection And Quantification".**

Dear Sir,
Best wishes from Bell Pharmacuticals, Habsiguda, Hyderabad.
Our staff and officials have undergone the scope of work for the proposed project. We extend our full support to carry out this research work. In this regard, we are glad to sponsor your project **"Uplc-Based Analytical Method Development And Validation For Antiviral Drugs: A Systematic Approach To Impurity Detection And Quantification"** with INR. 2,40,000 (Two lakhs Forty Thousand rupees only)

Managing Director
(Bell Pharmaceuticals)

Authorized Signatory

BELL PHARMACEUTICALS & COSMETICS PVT. LTD. Hyd

31/10/2023

Work Order

Date: 20/10/2023

To
The Principal,
Princeton College of Pharmacy,
Narapally, Chowdaryguda,
Secunderabad- 500 088.

Ref: Sponsorship for funded project Dated: 20/08/2023

Subject: Release of Work order for the project **"Uplc-Based Analytical Method Development And Validation For Antiviral Drugs: A Systematic Approach To Impurity Detection And Quantification".**

Dear Sir,

We have undergone the proposed project with our senior professionals. We extend our full support to carry out this research work. In this regard, we are glad to release the work order for the project **"Uplc-Based Analytical Method Development And Validation For Antiviral Drugs: A Systematic Approach To Impurity Detection And Quantification".**

From today onwards the following terms of payment will follow as per the budget proposal to complete the project.

S. No.	Mode of payment	Amount (INR)
1.	Term-1 (Work order& Analysis)	Rs.80,000
2.	Term-2(Modeling and Design)	Rs.80,000
3.	Term-3 (Fabrication, Machining and Testing and Delivery)	Rs.80,000
	Total	Rs.2,40,000

Best wishes from Bell Pharmaceuticals, Habsiguda.

Managing Director
(Bell Pharmaceuticals)

Authorized Signatory