



# Bharath

## INSTITUTE OF HIGHER EDUCATION AND RESEARCH

(Declared as Deemed-to-be University under section 3 of UGC Act, 1956)  
(Vide Notification No. F.9-5/2000 - U.3, Ministry of Human Resource Development, Govt. of India, dated 4<sup>th</sup> July 2002)



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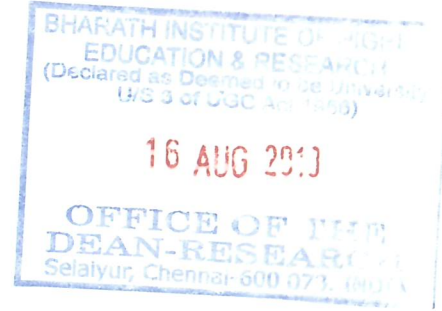
173, Agaram Road, Selaiyur, Tambaram,  
Chennai - 600 073. Tamil Nadu.

Ref. No.SMS-2018-O-02

Date: 16.08.2018

TO

Mr. E. Prabhakar Reddy  
Professor/Biochemistry,  
BIHER.



Thro: Concern Head of the Department

Greetings!!!

We are happy to announce that the Research Advisory Committee has approved your proposal for Seed Money Scheme-2018 which was presented by you. You are requested to complete the proposal and send the progress report to the Dean Research in the prescribed time period.

**Title of the Project: Uric Acid Level in Advanced Age of Patients with Rheumatoid Arthritis**

**Seed Money Amount: Rs.1, 00,000/- (Rupees One Lakh Only)**

**Approved on: 06.08.2018**

**Payment details:**

**Voucher No.47**

**Dated: 22.08.2018**

With Regards

Dean-Research

# Shree University

SELAIYUR, CHENNAI - 600 073, TAMIL NADU, INDIA.

## CASH / PAYMENT VOUCHER

Date 22/08/2018

V.No. 47

Debit \_\_\_\_\_ Amount \_\_\_\_\_

**Rs.**

PAID TO Dr. F. Prabhakar Reddy

RUPEES One Lakh only

TOWARDS Seed Money Scheme - 2018



*(Signature)*

Authorised by

Finance Manager

Cashier/Accountant

*(Signature)*  
Payee's Signature

## PROPOSAL SUBMISSION

### 1. Details of Principal Investigator

**Name** : Dr. E. Prabhakar Reddy  
**Designation** : Professor  
**Highest Qualifications** : Ph.D.  
**Department** : Biochemistry  
**E-mail** : drpebyreddy@gmail.com  
**Contact no** : 9159186879  
**Date of Joining** : 21.10.2009

### 2. Details of Co-Principal Investigator

**Name** : Dr. V. Senthil Kumar  
**Designation** : Professor  
**Highest Qualifications** : MD  
**Department** : Physiology  
**E-mail** : drvsenthilkumar@gmail.com  
**Contact No** : 9443513945  
**Date of Joining** : 13.02.2014

## Technical details

### 1. Introduction:

Rheumatoid Arthritis is a systemic autoimmune disorder that primarily targets the synovium of diarthrodial joints resulting in inflammation, erosion of periarticular surfaces. Though the etiology and pathogenesis of Rheumatoid arthritis remain unresolved, the reactive oxygen species (ROS) have been implicated to play an important role in this process (Quinonez-Flores et al., 2016) Free radicals are the molecules containing one or more unpaired electrons in the outermost atomic or molecular orbital's and capable of exciting independently. Generation of free radicals attack the nearest stable molecule by stealing it's outermost electrons by which molecule then loses its electron and becomes a free radical itself, beginning a chain reaction cascade resulting in damage to the cells results in tissue damage (Sailaja Rao et al., 2011) This will further acceleration the incidence in the patient with Rheumatoid Arthritis. As Rheumatoid arthritis is associated with an increase in oxidative stress, which is defined as an increased load of free radicals generated during cellular metabolism. Considerable evidence implicates oxidative stress in the pathophysiology of many complications. As uric acid, is a powerful exogenous scavenger of free radicals when compared to vitamin C in the blood plasma (Sautin & Johnson, 2008) Though high uric acid level may leads to various complication including Gout, the present study is aimed to explore the uric acid level and incident of oxidative stress in the patient with Rheumatoid arthritis.

### 2. Review of status of Research and Development in the subject

Daoussis, D., Panoulas, V., Toms, T. et al. Uric acid is a strong independent predictor of renal dysfunction in patients with rheumatoid arthritis. *Arthritis Res Ther* 11, R116 (2009).

UA is a ubiquitous by-product of purine metabolism and was thought to have a beneficial role by acting as an antioxidant [6]. Even though the link between impaired renal function and UA is well known, it has not received much attention, since hyperuricaemia was considered simply a consequence of decreased glomerular filtration rate (GFR). Recent evidence, however, supports the view that UA may not be just an innocent bystander but may be an active player in the pathogenesis of renal disease [7, 8] by causing endothelial dysfunction [9], intrarenal vascular disease [10] and renal impairment [11]. The most compelling evidence comes from animal models in which induced hyperuricaemia in healthy rats caused renal cortical vasoconstriction and glomerular hypertension that was prevented by allopurinol treatment [12]. In rats with pre-existing renal disease, hyperuricaemia increased renal vascular damage [13]. A growing amount of evidence from prospective large-scale epidemiologic studies points to the direction of a strong link between UA and renal dysfunction in the general population. UA was shown to be a powerful independent predictor of prevalent renal dysfunction but was also a significant predictor of progression of renal disease [14–17].

In a recent meta-analysis of the prospective studies addressing the role of hyperuricaemia as a predictor of future renal disease among patients with normal GFR, conducted in the past 20 years, it was shown that most studies (eight out of nine) found that UA was an independent predictor [18].

Authors have previously shown that UA is an independent predictor of hypertension [19] and cardiovascular disease (CVD) [20] in patients with RA. They have also shown that renal dysfunction in RA is associated mainly with cardiovascular risk factors and not RA-related factors such as disease activity, severity or therapy [21]. In that study, UA was shown to associate with renal dysfunction in patients with RA. In this study, we focus on the potential association of UA with renal dysfunction in patients with RA and investigate whether such an association is independent or mediated through other comorbidities or risk factors for renal impairment. We aimed at exploring the hypothesis that UA might be the link between CVD and renal dysfunction in patients with RA. To the best of our knowledge, this is the first study that focuses on the role of UA in renal dysfunction in patients with RA.

### **2.1. International Status:**

Rheumatoid arthritis (RA) is a chronic systemic inflammatory condition primarily involving the joints [1]. Gout is an arthropathy characterized by monosodium urate crystal deposition that occurs in association with hyperuricemia [2]. The coexistence of gout and RA is rarely reported. Only 33 cases with coexisting RA and gout have been reported in the English literature to date. It is a popular belief that RA and gout do not, or rarely, coexist with each other. Our aim was to assess the occurrence, prevalence, clinical presentation and risk factors for gout in RA in a population-based cohort. We also compared the occurrence of gout in RA between 1980 and 1994 versus 1995 and 2007.

### **2.2. National Status:**

NIL

### **3. Progress/ achievement so far, if any**

- a). Reference papers was collected.
- b). Materials and methods were designed
- c). Proposal has been sent for ethical clearance.

### **4. Work plan**

#### **4.1 Methodology**

Study will be carried out at Sri Lakshmi Narayana Institute of Medical Sciences, Hospital Pondicherry, India, Affiliated to Bharath Institute of Higher Education and research, Chennai. An informed verbal consent was taken from the patients before conducting the study. The institutional ethical clearance was also obtained.

### **Inclusion Criteria**

Patients with rheumatoid arthritis who are all suffering from active disease at the time of investigation, complaining of morning stiffness, synovial swellings and increased sedimentation rate are included in this study

### **Exclusion Criteria**

The individuals having clinical history of Diabetes Mellitus, Cardio Vascular Disease, various Inflammatory diseases and those who are not willing to participate were excluded in this study.

Around 150 sero-positive patients of rheumatoid arthritis who undergone treatment at Sri Lakshmi Narayana Institute of Medical Sciences Hospital & College at Pondicherry, India were selected. Equal number of age and sex matched normal individuals with asymptomatic of the Rheumatoid arthritis who volunteered participated in this study will be included as controls.

### **Parameters**

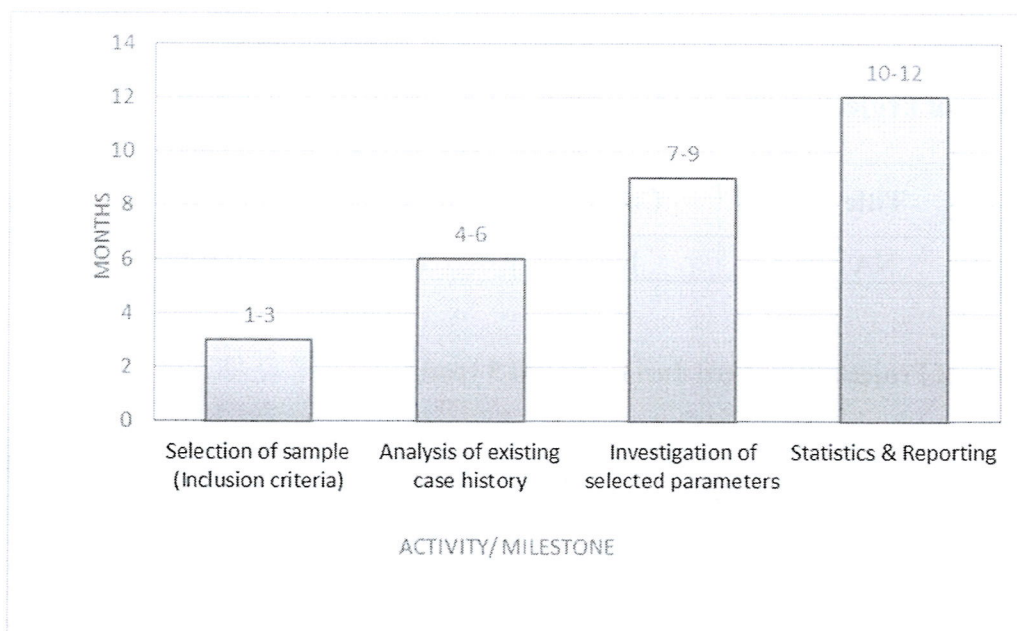
The healthy individuals (Control) and rheumatoid arthritis patients were subjected to the following investigations, rheumatoid Factor, Erythrocyte Sedimentation Rate and Uric Acid levels.

### **Statistical analysis**

Statistical analysis will be carried using Students't' test

#### **4.2 Time Schedule of activities giving milestones through BAR diagram. (Maximum of 1/2 pages)**

S. No	Activity/ mile stolon	1 <sup>st</sup> Year			
		1-3 month	4-6 month	7-9 month	10-12 month
1	Selection of sample (Inclusion criteria)				
2	Analysis of existing case history	-			
3	Investigation of selected parameters	-	-		
4	Statistics & Reporting	-	-	-	



#### 4.3 Expected outcome within the time period of See Money Scheme

Free radicals have been implicated in the pathogenesis of numerous diseases like diabetes mellitus, cancer, rheumatoid arthritis, and also in aging. Uric acid plays an important protective role in humans by providing protection against oxidative stress provoked ageing and cancer. Uric Acid is an oxidizable substrate for haemprotein and hydrogen peroxide which able to able to protect the oxidative damage by acting as an electron donor and further chelate metal ions to converting them into poorly reactive forms to enable them to catalyse the free radical reactions.

#### 5. Suggested Plan of action stating the name of funding agency where the project will be communicated for financial support within the time period of project.

Nil

#### 6. Bibliography: Nil

Nil

#### 7. List of Projects submitted/implemented by the Investigators (Separate for Pi and Co-PI)

##### 7.1 Details of Projects submitted to various funding agencies:

S.No	Title	Cost in Lakhs	Month of Submission	Role as PI/Co-PI	Agency	Status
1	NA	NA	NA	NA	NA	NA

## 7.2 Details of Projects under implementation

Sl.	Title	Cost in	Duration	Role as PI/ Co-PI	Agency
1	NA	NA	NA	NA	NA

## 7.3 Details of Projects completed during the last 5 years

Sl.	Title	Cost in Lakhs	Duration	Role as PI/ Co-PI	Agency
1	NA	NA	NA	NA	NA

## 8. List of publications published by the Investigators, if any:

### a) Principal Investigator

S.No	Author names	Title of paper	Name of Journal	Vol (Issue)	Page No.	Year
1.	M Maney, V Rao, <b>EP Reddy</b> , A Vaithilingam	Prolonged Storage-Induced Changes In Haematology Parameters And Stability At Room Temperature For Counting Red And White Blood Cells And Platelets	Paripex-Indian Journal Of Research	6 (3)	46-48	2017
2.	1B. Sai Ravi Kiran*, 2T. Mohana Lakshmi, 3R. Srikumar, <b>4E. Prabhakar Reddy</b>	Total Antioxidant Status and Oxidative Stress in Diabetes Mellitus and Metabolic Syndrome	International Journal of Pharmaceutical Sciences Review and Research	40(1)	271-277	2016
3.	V Kowsalya, R Vijayakumar, R Chidambaram, R Srikumar, <b>E Prabhakar Reddy</b> , S Latha, I Gayathri Fathima, C Kishor Kumar	A study on knowledge, attitude and practice regarding voluntary blood donation among medical students in Puducherry, India.	Pakistan Journal of Biological Sciences	16(9)	439-442	2013

b). Co-Principal Investigator

S. No	Author names	Title of paper	Name of Journal	Vol (Issue)	Page No.	Year
1.	S.Latha*1, R.Vijayakumar1, *B.R.Senthil Kumar2, R.Srikumar3, G.Bupesh4	Synergetic hypoglycemic and hypolipidemic effect of herbal Formulation of flax seed, fenugreek and jamun seeds in Streptozotocin-nicotinamide induced diabetic rats	International Journal Of Pharmacy & Technology	8(2)	12671-12684	2016

9. Budget

SI. No	Head	Amount (Rs.)
1	Minor Equipment's	40,000/-
2	Consumables (gels bottles, cotton, spirit, testing charges, tools, etc.)	30,000/-
3	Travel support for the purpose of research work	10,000/-
4	Contingency	10,000/-
5	Others consumables	10,000/-
	<b>Total</b>	<b>1,00,000/-</b>

\*In case of any joint proposal for purchasing a same equipment, each of the associated PLs is also required to give separate budget (without any clubbing) to avoid any ambiguity, if all the associated projects are not awarded by committee.

**10. Name of at least two subject experts from the Institute and one from the outside Institute with their contact details:**

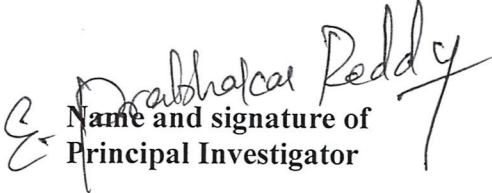
<p>1. <b>Dr. Seshadri Reddy</b> Assistant Professor, Dept of Biochemistry AIIMS Deoghar <b>Mobile No:</b> 8106145001 <b>E-mail id:</b> lifeschemistry@live.com</p>	<p>2. <b>Dr. Manne Munikumar</b> Data Manager (Bioinformatics) Clinical Division, ICMR-National Institute of Nutrition Jamai-Osmania (Post) Hyderabad-500007, Telangana <b>Mobile No:</b> 9492373997 <b>E-mail id:</b> mannemk@gmail.com</p>
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## CERTIFICATE FROM THE INVESTIGATOR

**Project Title:** Uric Acid Level in Advanced Age of Patients with Rheumatoid Arthritis.

It is certified that


1. I do hereby agree to submit a complete proposal for financial support to the external funding agency within the time period of SMS-2018.
2. I undertake that spare time on equipment procured in the project will be made available to other users.
3. I agree to submit a certificate from Institutional Biosafety Committee, if the project involves the utilization of genetically engineered organisms. I also declare that while conducting experiments, the Biosafety Guidelines of Department of Biotechnology, Department of Health Research, GOI would be followed in to.
4. I agree to submit ethical clearance certificate from the concerned ethical committee, if the project involved field trails/experiments/exchange of specimens, human & animal materials etc.
5. I agree to abide by the terms and conditions of SMS-2018, BIHER, and Chennai.

  
Name and signature of  
Principal Investigator

  
Name and signature of  
Co-Principal Investigator

**Date:** 11.07.2018

**Place:** Pondicherry

  
**Forwarded by Head of the Department**

**Signature of the Head**

  
**DEAN**  
**SRI LAKSHMI NARAYANA INSTITUTE OF MEDICAL SCIENCES**  
OSUDU, AGARAM VILLAGE,  
KOODAPAKKAM PORT  
PUDUCHERRY - 605 502

## PROJECT EVALUATION FORMAT

### Recommendation sheet

Name of the Principal Investigator	Dr. E. Prabhakar Reddy
Name of the Co-Principal Investigator	Dr. V. Senthil Kumar
Name of the Department	Biochemistry
Title of project	Uric Acid Level in Advanced Age of Patients with Rheumatoid Arthritis
Recommendation of the evaluation committee (Recommended/Revision/Not Recommended)	Recommended
Financial allocation recommended	Rs. 1,00,000/-

SI. No	Head	Amount (Rs.)
1	Minor Equipments	40,000/-
2	Consumables (gels bottles, cotton, sprit, testing charges, tools, etc.)	30,000/-
3	Travel support for the purpose of research work	10,000/-
4	Contingency	10,000/-
5	Others consumables	10,000/-
	<b>Total</b>	<b>1,00,000/-</b>

Name and Signature of the Research Advisory Committee members with date.



*Dr. A. Sugumaran*  
(Dr. A. Sugumaran)