

NCBS

National Centre for Biological Sciences

Tata Institute of Fundamental Research (TIFR)

University of Agricultural Sciences (UAS) - Gandhi Krishi Vignan Kendra (GKVK) Campus
Bangalore 560 065, INDIA

Tel: 91 (0) 80 363 6422/28/ext 3270; FAX: 91 (0) 80 363 6662/6862; e-mail: mathew@ncbs.res.in

Prof. M.K. Mathew

To,

Professor P. Balaram
Molecular Biophysics Unit
Indian Institute of Science
Bangalore 560 012

Dear Professor Balaram,

In continuation of a discussion I had with Professor KS Krishnan regarding the neurotoxic effects of snail venom components, I am writing to formally inform you that I would be very happy to collaborate with you on this project.

We are currently studying voltage-gated potassium channels expressed in *Xenopus laevis* oocytes and it would be a simple matter to screen snail venom peptides for activity against these channels. We have a large collection of voltage-gated K⁺ channels available in the laboratory and it should be possible to obtain cDNAs encoding other voltage-gated and receptor-activated ion channels as well.

The screen would involve *in vitro* transcription of the cDNAs, injection in *Xenopus* oocytes and electrophysiological characterisation. We would need to make constructs suitable for expression in oocytes for receptors and channels other than those we are currently working on. To begin with we should be able to use the rigs available in the laboratory - both the 2-electrode voltage-clamp rig and the cut-open oocyte rig that we are now putting together. The cut-open oocyte preparation permits the application of reagents to the cytoplasmic face of the oocyte which could be extremely useful for some studies. On the other hand, single channel data will be critical to nail down the mechanism by which the toxins bring about their effects, and this would require a patch clamp rig which should be relatively easy and inexpensive to set up as some components can be utilised from rigs already in place.


I would estimate that 1 JRF would be able to handle most of the molecular biology required and a student would need to dedicate about 30% of his/her time to doing the electrophysiology. The project would require a lot of molecular biology reagents while the dedicated patch rig can be pieced together in stages over the first 2 years of the project. We would need to add receptors and additional channels that become available over the course of the project. A summary of the project costs for my laboratory would be Rs. 42.9 lakhs over 3 years with the break up shown below:

Item	Year 1	Year 2	Year 3
JRF	0.75	0.75	0.75
Patch Clamp rig	10	10	0
Consumables	5	5	5
Overheads	2.35	2.35	.95
TOTAL	18.1	18.1	6.7

I look forward to a fruitful collaboration.

Yours sincerely,

08 May 2002



M. K. MATHEW