

Presentation By
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Welcome to Kerala, again



The Indo-Dutch meeting 270 years back ...

- Colachel - a town less than 100Km from here is where, in 1741, an extraordinary event took place - the Battle of Colachel. For the first, and perhaps the only time in Indian history, an Indian kingdom defeated a European naval force.

D'lennoy

- The battle began when a force of Dutch marines under the leadership of a Flemish commander, Captain Eustachius De Lannoy (also spelt D'lennoy) attacked Travancore. D'lennoy was captured and later became the Commander-in-Chief of the Travancore Army and served for 2 decades.

Cbi@University of Kerala

- Teaching – MSc in Computational Biology and Mphil in Bioinformatics
- Research – PhD Programme started in 2006 – (i) Use of digital signal processing in analysing Bio-sequences – gene finding, protein sub-cellular localisation, protein protein interactions, miRNA target prediction (ii) Molecular Modeling and Drug Discovery



CBi Research Group (#19)

With Visiting Scientists Prof Alessandro Giuliani from Italy and
Dr Pawan Dhar from Riken, Tokyo



Erasmus Mundus Collaboration

Industry Linkage

- Incubation Centre@Cbi
- Soorya Kiran Bioinformatics Pvt Ltd
www.sooryakiran.com – now in
Trivandrum Technopark.

Our Bigness

We are small !
We are a family

We work in an environment where innovation is not cared for,
so we find that those who remain are self-motivated !

90% of our students are women
50% of our researchers are women

No surprise for a state which had a 13-year old queen as contemporary of Queen Victoria

Reflections on Bio-Banks

- Seeds ? Cell Lines ? Microbes ? Bio-sequence data banks ? Molecular data banks ? Ethnic/ traditional knowledge about bio-diversity ?

Kerala's Traditional Knowledge

- Ayurvedic Plants – Knowledge still alive and practiced
- Molecular level of analysis is yet to be done
- Ayurveda education to be upgraded with molecular study skills

Case Study: Activity of *Trichopus zeylanicus* in fighting fatigue

- Kani Tribes in Trivandrum eat the fruits of Arogyapacha to get rid of fatigue
- The specific compound(s) and its antifatigue property are not known yet
- Happily Anoop is trying@CBI

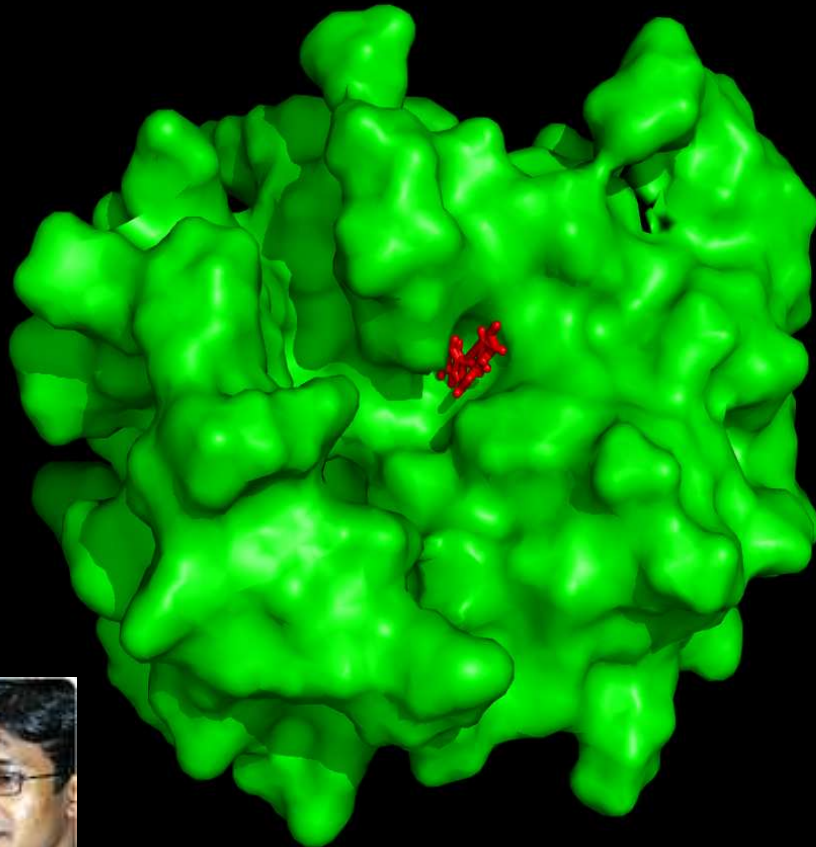


Anoop P.K a researcher at the Centre for Bioinformatics, is from the Kerala's capital city, Ananthapuri. – the abode of Lord

CADD@CBI

- Molecular Docking Station Running on Moderately Powerful Clusters
- Skill in Molecular Dynamics
- Open Source Drug Discovery
- Entries in PDB and EMBL
- Immunoinformatics – Vaccine design (the future need for Kerala University – Snake bite vaccines !)

Molecular Modeling and Docking studies of Hepatitis C NS3 protease



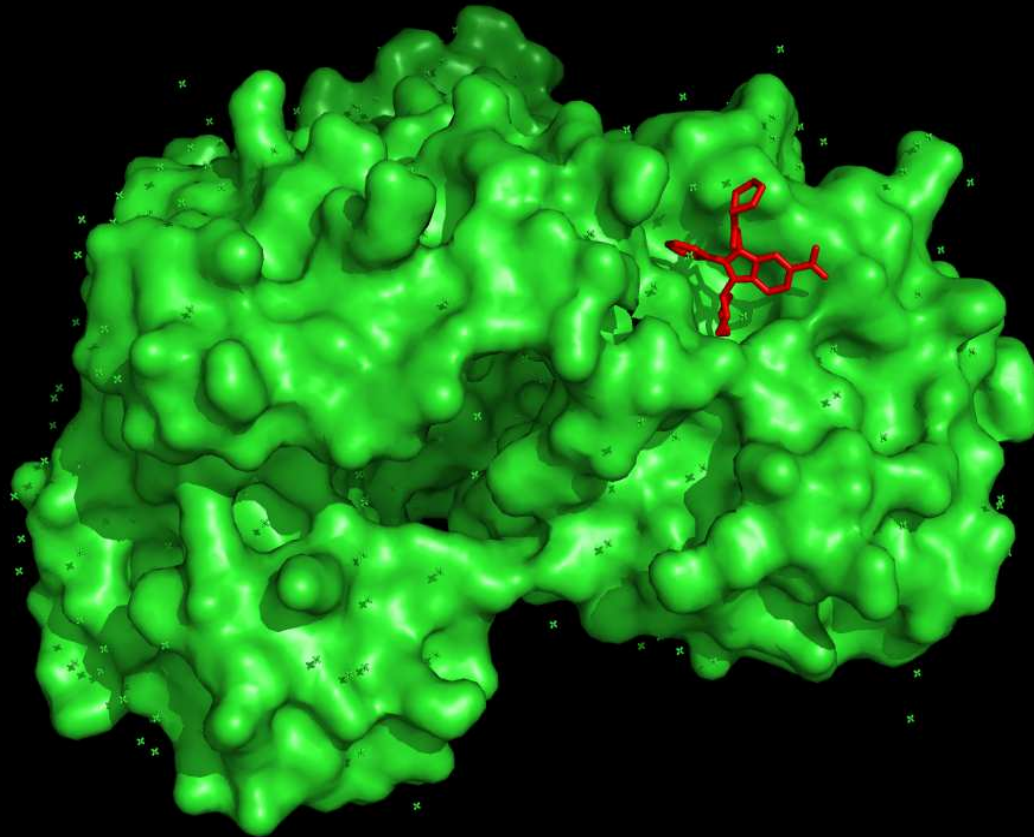
2IJS

3D structure has been modeled and submitted in PDB (2ijs)

27 hit molecules which are under patent process.

These molecule are specific to the viral strain prevalent in India, especially Kerala.

Molecular docking studies of Hepatitis C virus RdRp



**RNA dependent RNA
polymerase enzyme.**

**Docking studies reveal
new drug molecules
which show good
ADME properties and
minimal Toxicity.**

**These molecules can be
used as drugs which
can inhibit viral
replication.**

2BRK