



MOINA



CUBE NATIONAL MEET 2022

 STEM CHAT
GAMES

Introduction to *Moina*

- **Freshwater crustacean**
'water fleas' from ponds, lakes, rivers, etc.
- Feeds on **bacteria, yeast, algae, phytoplankton and detritus.**
- **Average length:**
0.7-1.5mm (700-1500μm)
- **Average life span:** 12-14 days
- **Average life cycle:** 3-4 days



TAXONOMICAL CLASSIFICATION

Kingdom: Animalia
Phylum: Arthropoda
Subphylum: Crustacea
Class: Branchiopoda
Order: Cladocera
Family: Moinidae
Genus: *Moina*
Species: *Moina macrocopa*
Strain: JSK1

From an ecosystem pond to GenBank

Characterisation of genome

Date: 17th October 2018

Authors: Kritika Katti,
Shital Bhanushali,
Subhojit Sen, Jyoti
Ramchandani

GenBank Send to: ▼

Moina macrocopa strain JSK1 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial

GenBank: MH734122.1

[FASTA](#) [Graphics](#)

Go to: ☐

LOCUS MH734122 648 bp DNA linear INV 17-OCT-2018

DEFINITION Moina macrocopa strain JSK1 cytochrome oxidase subunit 1 (COI) gene, partial cds; mitochondrial.

ACCESSION MH734122

VERSION MH734122.1

KEYWORDS .

SOURCE mitochondrion Moina macrocopa

ORGANISM [Moina macrocopa](#)
Eukaryota; Metazoa; Ecdysozoa; Arthropoda; Crustacea; Branchiopoda; Diplostraca; Cladocera; Anomopoda; Moinidae; Moina.

REFERENCE 1 (bases 1 to 648)

AUTHORS Katti,K.S., Bhanushali,S.L., Sen,S. and Ramchandani,J.H.

TITLE Direct Submission

JOURNAL Submitted (09-AUG-2018) Department of Life Sciences, University of Mumbai, Vidyanagari, Kalina, Santacruz - East, Mumbai, Maharashtra 400098, India

COMMENT ##Assembly-Data-START##
Sequencing Technology :: Sanger dideoxy sequencing
##Assembly-Data-END##

FEATURES

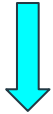
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/organelle="mitochondrion"
/mol_type="genomic DNA"
/strain="JSK1"
/isolation_source="freshwater pond"
/db_xref="taxon:150844"
/country="India: Mumbai"
/collected_by="Collaborative Undergraduate Biology Education(CUBE), Homi Bhabha Centre for Science Education"

Source: <https://www.ncbi.nlm.nih.gov/nucleotide/MH734122.1>

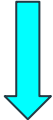
Culturing Moina

How to get
dechlorinated
water

Take 250ml of tap
water.



Cover it with a
cloth



Leave it
untouched for 24
hours



Procedure

Plastic bottle of 500ml



Put 250ml of dechlorinated water in it



Collect moina from a freshwater body



Put the moina in 250ml of dechlorinated
water



Add 1 drop of milk every alternate days in this
250ml of dechlorinated water containing
moina

Experiment: *Moina* Life cycle assay

Objective: To determine the life cycle of freshwater crustacean *Moina macrocopa* JSK1

Culture conditions: 1 drop of 1:10 dilution of milk and water (1d milk homogenised in 10d dechlorinated water) in 25mL of DCW on alternate days

Materials used: 5-30mL Glass vials, 2-plastic droppers, 500mL Dechlorinated water (DCW), 1-glass slide, Milk, Cotton (plugs)



Vial	Time of birth	Time of addition into resp. vial
1	Anytime between 5.49pm and 8.09pm	8.25pm
2		8.35pm
3		8.40pm
4		8.51pm
5		8.55pm

Method

Harvest **gravid-looking *Moina*** from the stock culture

Add them in a **white plate/ceramic** with **DCW**

Screening them to know the no. of **in-vivo progenies**

Drop one of them in a **glass vial**

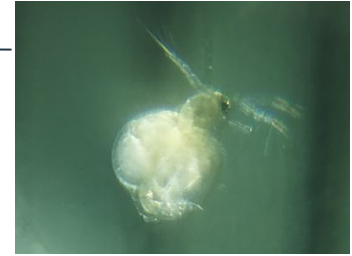
Wait for progenies

Screen progenies after birth

Add progenies into **individual vials**

Screen at specific **time intervals** twice a day

Lodge the **observations** into Open **LogBooks**



Simple



Economical



Basic



HomeLab-based



CUBE

Results

Pic courtesy: Drishtant M Kawale

A *million Daphnia* project



Many Cubists culturing *M.macrocopa*, then
TCDS

A goof up has been done

Unusual result observed

The translucent *M.macrocopa*, why does start
turning red?



Pic courtesy: Zahra R & Drishtant MK | Illustrations: Drishtant MK

FUTURE PROSPECTS

Effect of VPA on the motility in Moina

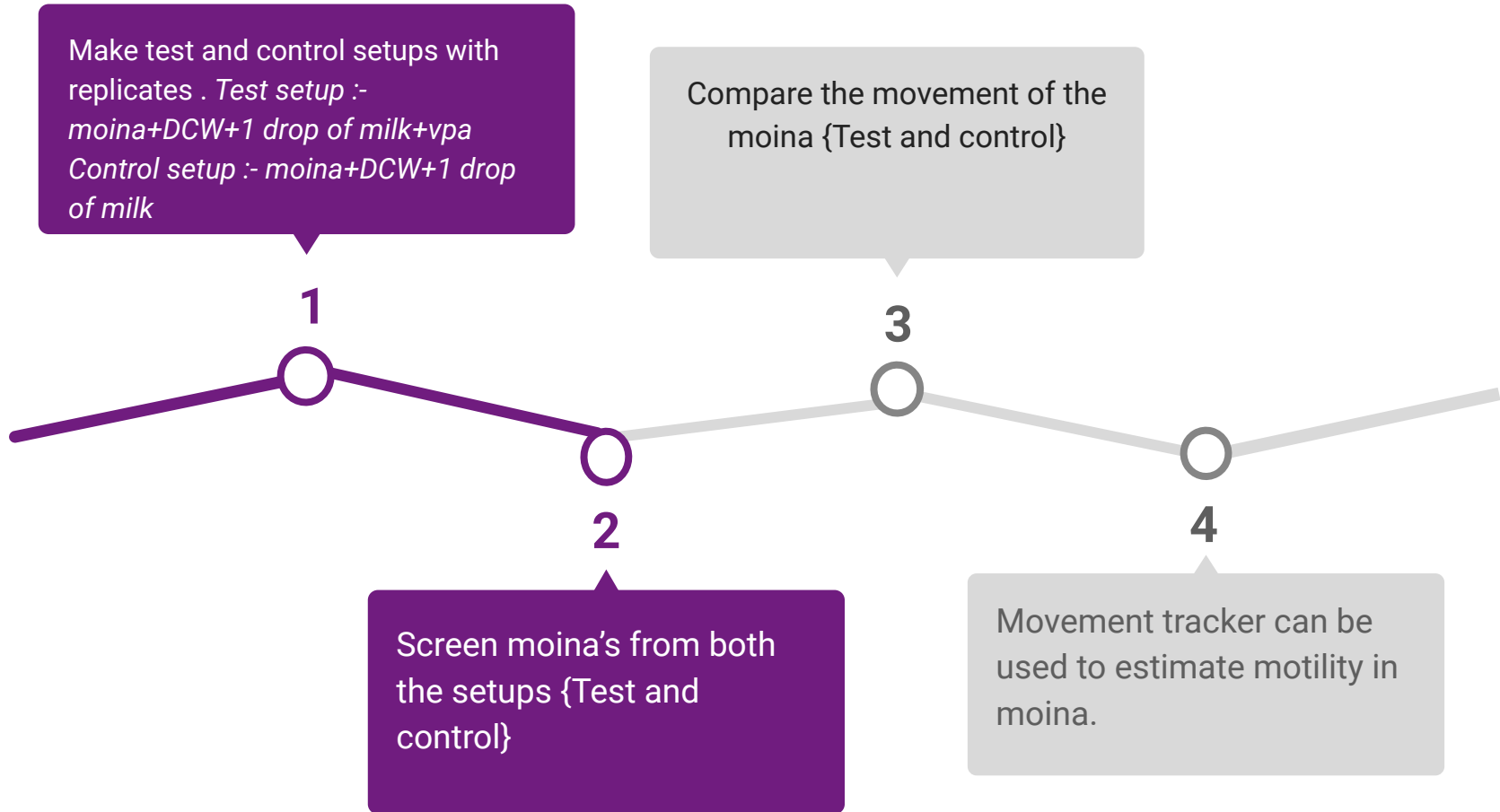
What is this VPA?

- Therapeutic drug used on patients with bipolar disorder, epilepsy, partial seizures.
- Anti convulsant
- Inhibits histone deacetylase

OBJECTIVE - to study the effect of VPA on the motility in Moina

HYPOTHESIS - the erratic movement of moina will become slower /smoother when introduced to VPA.

Protocol for VPA assay



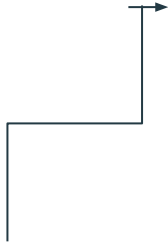
ACCOUNTING FOR GOOF UPS

CONTROL SETUP

- MOINA + 25ML DcW + 1drp {1:10 dil}

TEST SETUP

- MOINA + 24ML DcW + 1drp {1:10 dil} + 1ML of VPA stock sol



4ug/ml stock sol
1ml of 4ug/ml in 24 ml DcW
I.e total conc = **0.16ug**



0.16ug affecting the culture within
3 days

Goof ups!!

- Excess of milk- resulting in the death of Moina's
- Maintaining proper records
- Adding labels properly
- Not taking photos
- Not putting regular updates in the CUBE groups



THANK YOU!!!