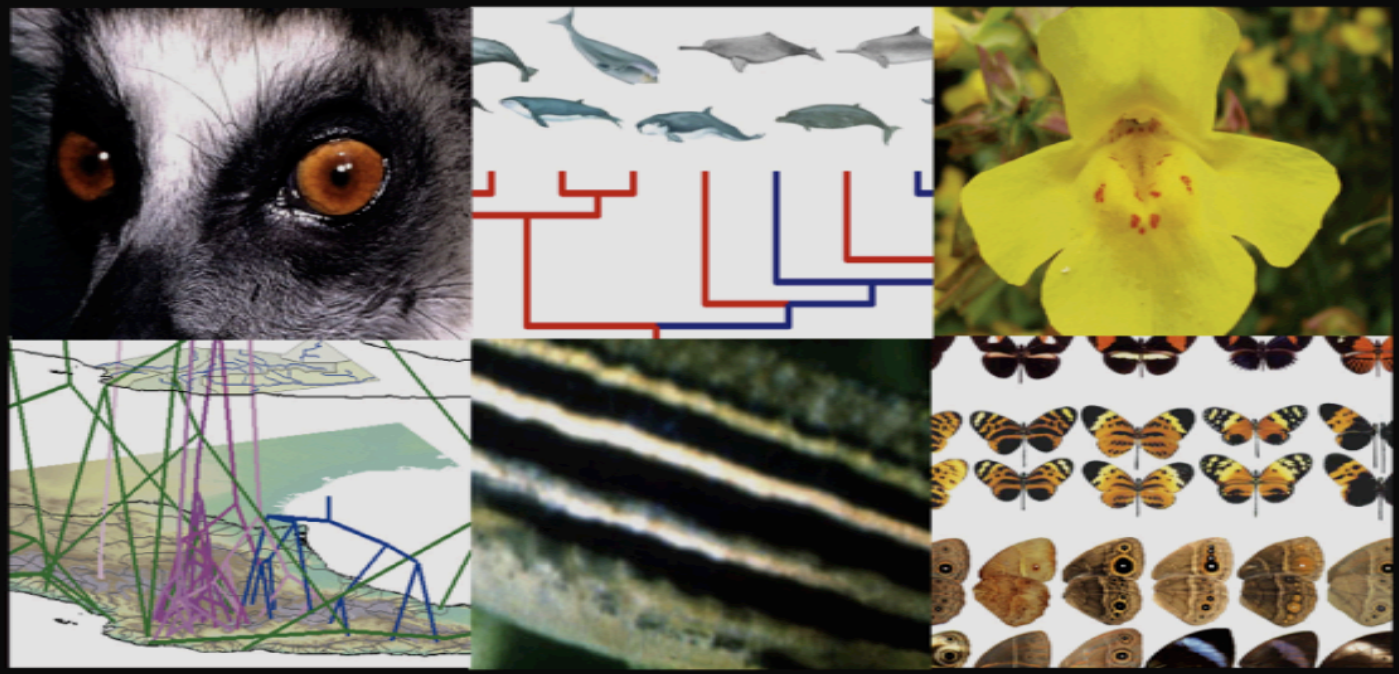
NESCent

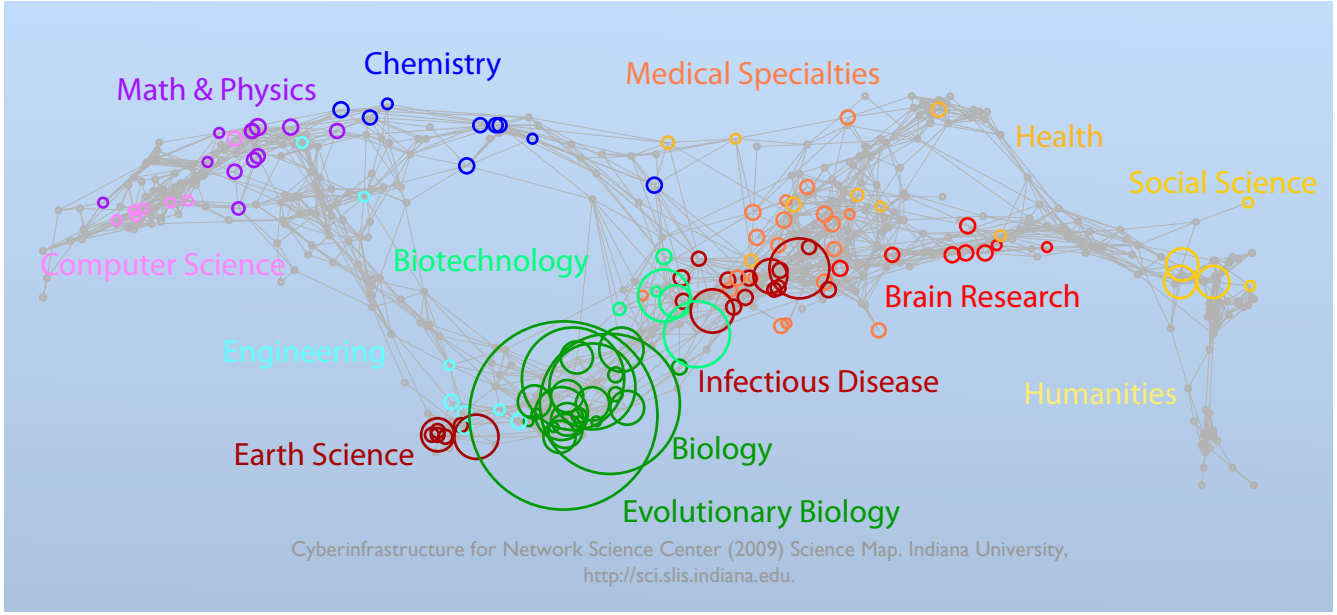


National Evolutionary Synthesis Center

Our mission

To promote the synthesis of information, concepts and knowledge to address significant, emerging, and novel questions in evolutionary science and its applications.

We accomplish this by supporting research and education across disciplinary, institutional, geographic, and demographic boundaries.



National Evolutionary Synthesis Center

Sponsored science

- Short-term visitors (2 wks – 3 mos)
- Graduate fellows (1 semester)
- Postdoctoral fellows (2-3 yrs)
- Sabbatical scholars (6 months – 1yr
- Working groups (2 yrs, ~12 individuals)
- Catalysis meetings (1 time, ~30 individuals)

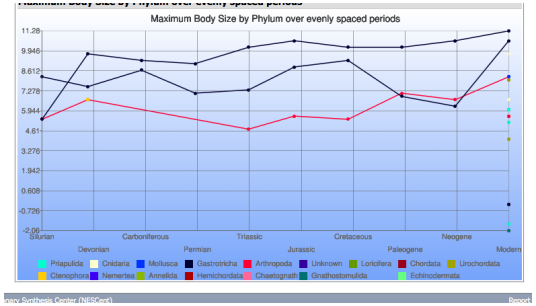
Education and Outreach

- NESCent Academy for researchers and teachers
- Darwin Day
- Journalists-in-residence
- Promoting participation by under-represented groups

Informatics…

Custom tools for sponsored scientists

Maximal bodysizes throughout evolutionary history
(bodysize.nescent.org)

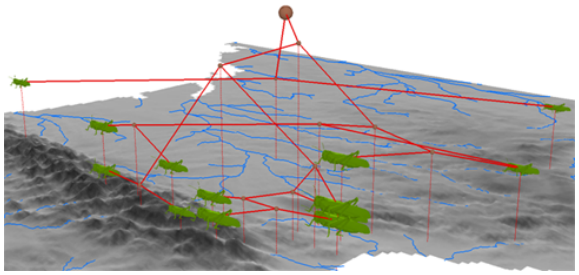


J. Payne,
J. Stempien,
M. Kowalewski

Synthesis of primate life history data
(plhd.nescent.org)

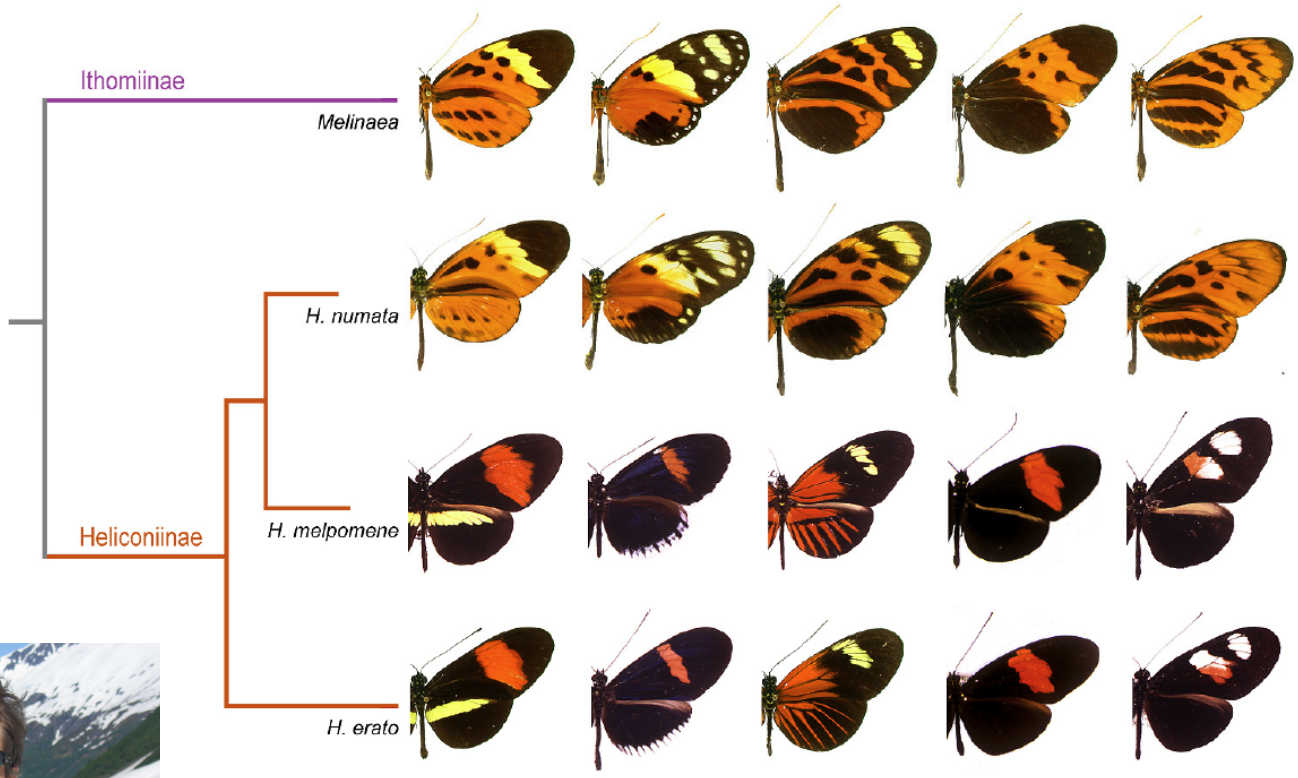
S. Alberts

Visualizing geophylogenetic data
(GeoPhyloBuilder)



D. Kidd

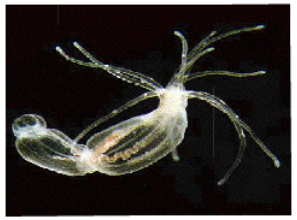
Genome databases for evolutionary models



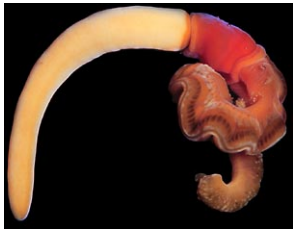
Heliconius spp.

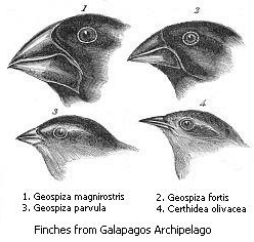
Owen McMillan

Evolutionary model organisms

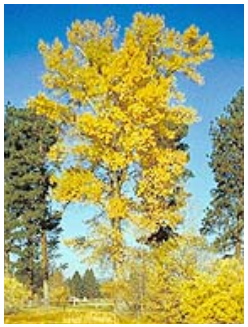


- Compelling biology
- Sequence & map data
- Stocks
  - Natural diversity
  - Phenotypic mutants
  - Mapping populations
  - Clones, microarrays, etc.
- Protocols
- Community
  - Web database





Finches from Galapagos Archipelago

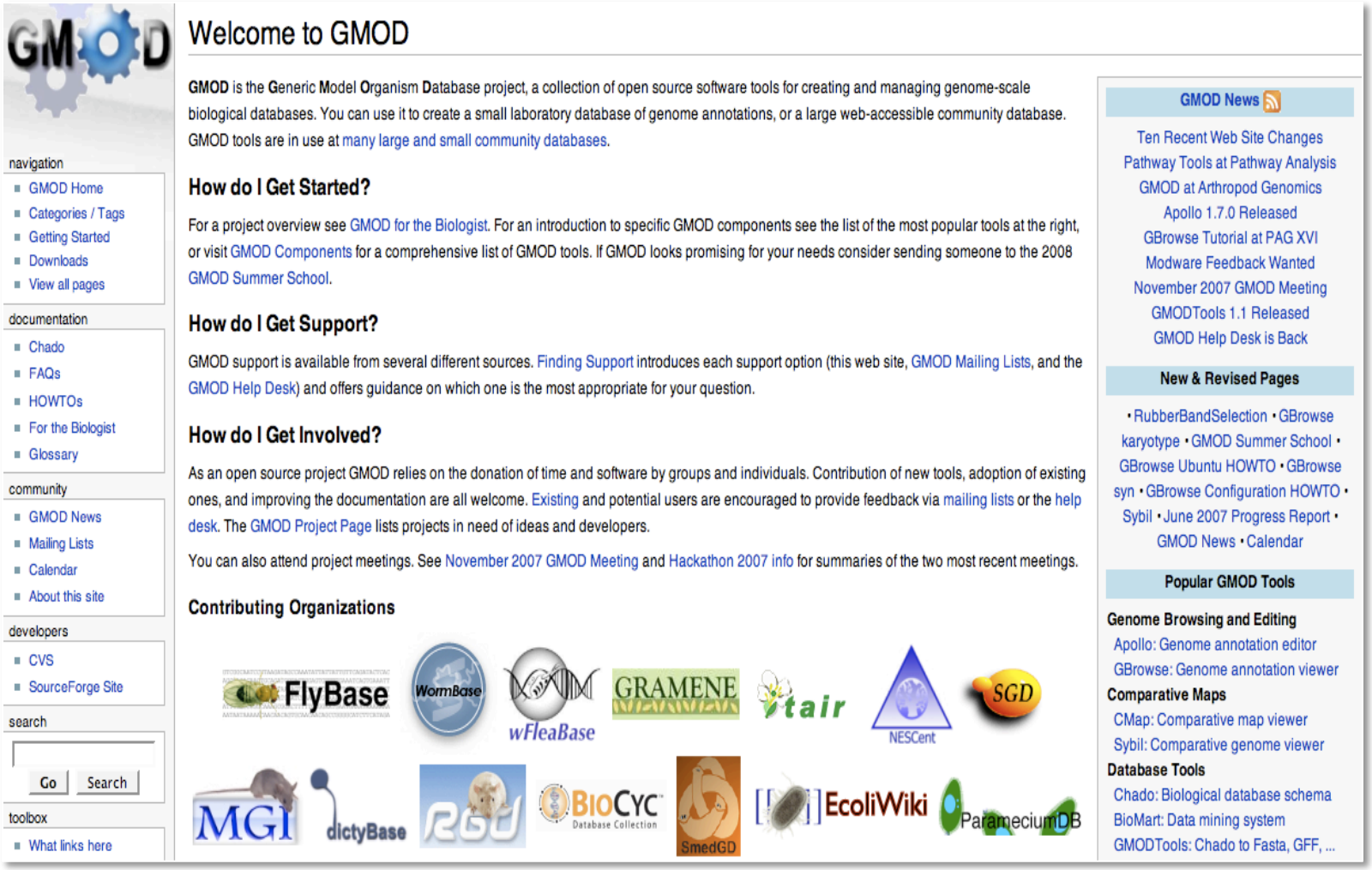


Images: BioMedia Assoc. (Saccoglossus), UBC Bot. Gard. (Aquilegia), C. Farmer (Mimulus), N. Patel (Paryhale), P. Burton (Nematostella), C. Darwin (Geospiza), NY State Dept. of Envionmental Conservation (Gasterosteus), A. Monteiro (Bicyclus), J. Selier & J. Peterson (Populus), J. Good - NPS (Peromyscus)

Cyberinfrastructure initiatives

- Need within the evolutionary biology community.
- Impact on facilitating synthetic science
- Impact across disciplines
- Feasibility and cost-effectiveness.
- Strength of the match to the capabilities and of the center.
- Success requires the involvement of a national center.

GMOD user support



Ontologies for evolutionary data

PHENOSCAPE

entity: scale

source: Teleost Anatomy Ontology

- pharyngeal tooth plate
- pharyngobranchial tooth plate
- postcleithrum
- posttemporal
- posttemporal-supracleithrum
- premaxilla
- preopercle
- preopercle horizontal limb
- preopercle vertical limb
- pterotic-posttemporal-supracleithrum
- rostral plate
- **scale**
  - circuli
  - ctenoid scale
  - focus
  - lateral line scale
  - pouch scale
  - radius
- sensory canal tubular ossicle

Properties

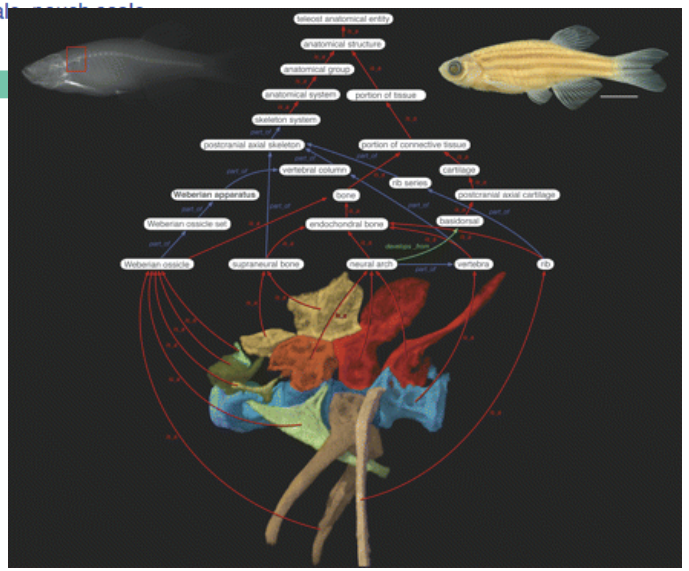
Synonyms: scales (exact)
Definition: Dermal bone that is thin, flexible, and platelike, and that develops in overlapping skinfolds that cover the body and often the head of fish and the bases of the fins.
ID: TAO:0000277

Relationships (about)

is part of: dermal superficial region
is a type of: dermal bone
has subtype: ctenoid scale, lateral line scale
may have part: circuli, focus, radius

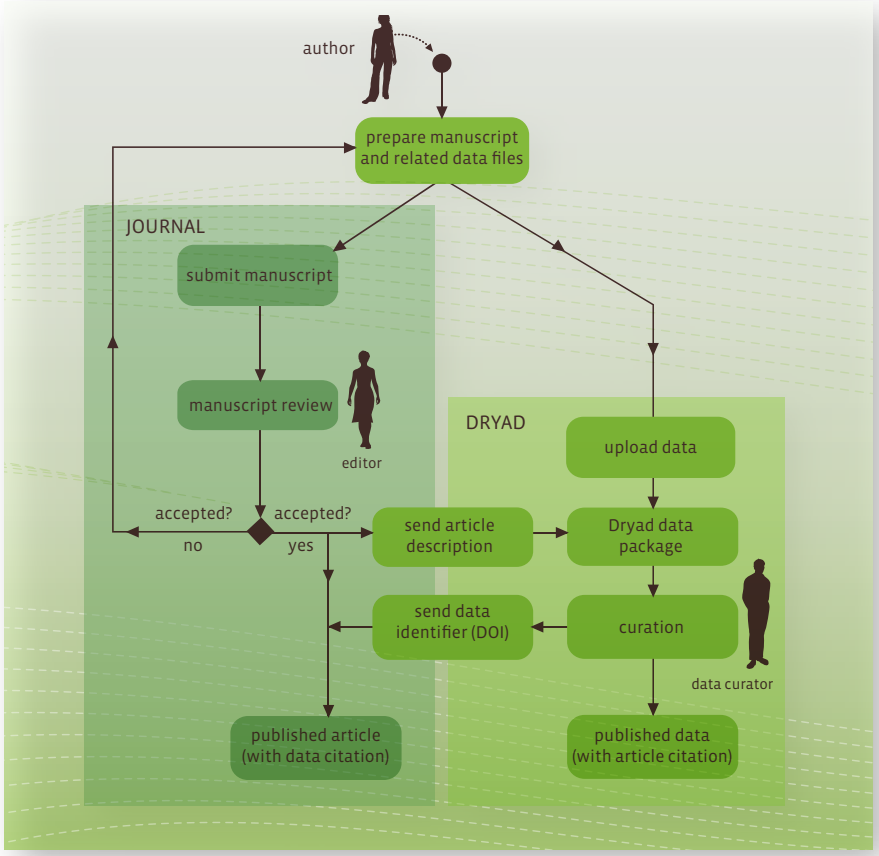
Data in the Knowledgebase

Comparative phenotype annotations
Gene phenotype annotations
Comparative publications



DRYAD

- Data archived as part of publication
- Easy submission process
- Peer review of data
- Persistent link from paper to data
- Support for data citations
- Data in public domain
- Option to embargo
- Deep data indexing and searching
- Updatable datafiles
- File format migration
- Governed and sustained by journals



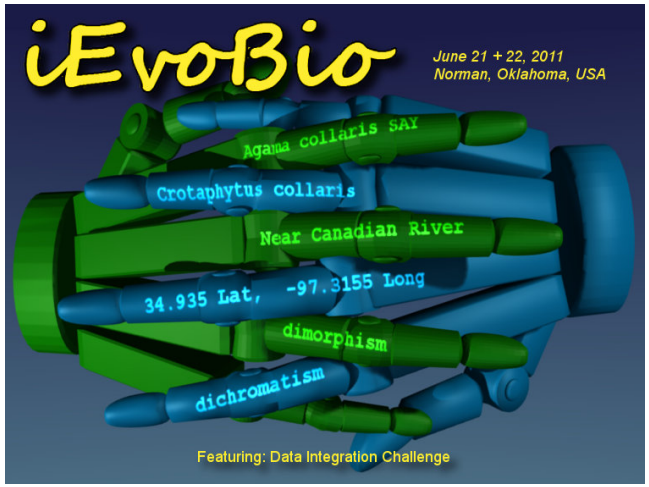
http://datadryad.org

Promoting open-source evoinformatics

Courses

Internships

Conferences



Hackathons

- Promote interoperability, add new functionality to existing community resources, nurture collaborations, build a cohesive developer community

Comparative phylogenetic methods in R

2007

GMOD tools for evolutionary biology

2010

Idea for a hackathon? Submit a whitepaper

when I whip out my tool gun, a mass of text yells at me.

All of my weapons work and shoot, but when i shoot them a ERROR text pops out the side and bounces aroun on the floor. They used to all not do that untill i got on about a week ago and they did. The weapons that came with gmod don't shoot big ERRORS from the side but now only some of the downloaded ones don't.

i click the fire button the blue beam comes out but it has no effect on the prop or anything else, and without your physics gun you simply cant play the game because u cant bulid anything you cant move anything its so fustrating, so please answer this message and give me some feedback and help so i cant solve this issue. so please help me i am so desperate to get it working again and you are my last resort no one else has responded

You have reached the help desk for the Generic Model Organism Database (http://gmod.org). You want the other GMod, Garry's Mod (http://www.garrysmod.com/). Garry's Mod has two support channels:

1. Email - support@garrysmod.com
2. Help and Support forum:http://forums.facepunchstudios.com/forumdisplay.php?f=16

Regards,

Dave C.

Oh, I'm so sorry! Haha. I bet you guys get alot of e-mails from people referring to garry's mod. Good luck databasing generic organism models! (or whatever it is you guys do)

So Gmod and Garry's mod are completely different?

P.S - I finally took a look at the Garry's MOD webpages. It actually looks kinda cool..