

# HOW TO BUILD A BIOINFORMATICS SERVICE IN A YEAR

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CHLA/ABSC 2011  
May 29th, Session E



## THINK ABOUT IT

Determine scope of project for your context

## GET APPROVAL FROM STAKEHOLDERS

Find your niche

## START YOUR SERVICE

Workshop, specialised reference and online guide

## EVALUATE SUCCESS

Pie charts galore!

# Bioinformatics in libraries



# Tipping point: an inspiring CE course

145

REVIEW / SYNTHÈSE

## Cheers for CHLA's 2009 bioinformatics course

Kathy Hysen

It was with trepidation and excitement that I enrolled in the bioinformatics course sponsored by the Canadian Health Libraries Association (CHLA) and taught by McGill University's Joan Bartlett, Assistant Professor in their School of Information Studies. Since I'm not currently working in a library environment, and with my nursing and science education a little rusty, I was looking for a topic that would be a fascinating "Entrez" to current scientific and information science practices. And fascinating it was...

As major breakthroughs continue in genetics research, its basics are becoming an integral part of elementary, secondary, college, and university curricula. These days, librarians do not usually require in depth knowledge about genetics to answer most questions; however, we need to consider the view 5 years from now. The human genome has already been sequenced, and the genetic basis for many human dis-

tools that analyze these sequences for similarities (e.g., ORF Finder (<http://www.ncbi.nlm.nih.gov/gorf/gorf.html>)).

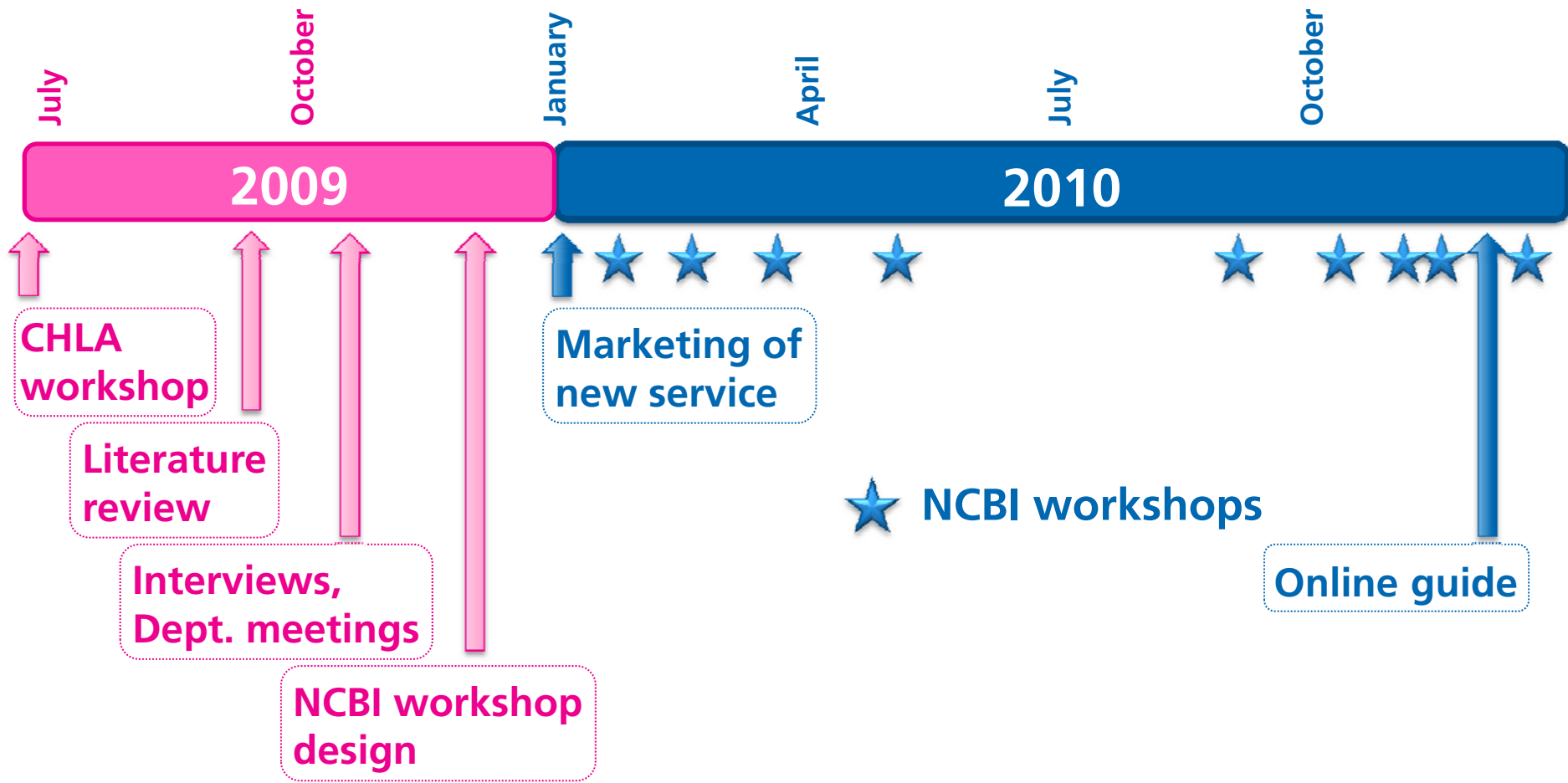
We are all familiar with the dynamic nature of electronic resources; their user interfaces, content, and ownership are not static by any stretch of the imagination. In genetics, this issue is compounded by the individuality of scientists and their research, their funding situations, and their particular computer programming colleagues. With the fast pace of recent genetic research, staggering numbers of new in-house databases have been built, with all their attendant idiosyncracies. An examination of the 2009 *Nucleic Acids Research* annual database issue (available at [http://nar.oxfordjournals.org/content/vol37/suppl\\_1/index.dtl](http://nar.oxfordjournals.org/content/vol37/suppl_1/index.dtl)) drives home this point, with a total of 179 databases described, including 95 new ones.

Combined with the pivotal role that computer science

*Hysen K. Cheers for CHLA's 2009 Bioinformatics Course. Journal of the Canadian Health Libraries Association (JCHLA). 2009;30(4):145-6.*



# Project timeline





# Get a little help from your friends

Molecular Biology and  
Genomics Special  
Interest Group



MEDICAL LIBRARY  
ASSOCIATION

# Contact other bioinformaticists for inspiration (*and* justification for your project!)



The screenshot shows the NIH Library website. At the top, the NIH logo is displayed with the text "LIBRARY" and "Amazing Research. Amazing Help." Below the logo is a navigation bar with links for "Home", "Library Services", "Research Tools", and "Re". The main content area features a header "NIH Library | Research Tools | Bioinformatics Program Staff" and a section titled "Bioinformatics Program Staff". On the left side, there is a sidebar with a search box, a link to "Ask A Librarian", and a "Quick Links" section containing links for "Bioinformatics", "Going Green", "Online Books", "Online Catalog", "Online Databases", "Online Journals", and "Order a Document". The main content area includes a portrait of Dr. Medha Bhagwat and a biographical text describing her background and work.

LIBRARY  
Amazing Research. Amazing Help.

Home Library Services Research Tools Re

NIH Library | Research Tools | Bioinformatics Program Staff


## Bioinformatics Program Staff

Ask A Librarian →

Search Library Site

Quick Links

- Bioinformatics
- Going Green
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- Order a Document



Dr. Medha Bhagwat, Informationist has a PhD in biochemistry from the University of Maryland, College Park, and has conducted postdoctoral training at NIDDK focusing on the structure-function studies of bacteriophage T4 RNase H. Medha published several articles on her research, as well as book chapters on bioinformatics classes/protocols.

From 2001 to 2008 she taught at the NCBI Core-Bioinformatics Facility training the representatives from NIH institutes in the use of the NCBI bioinformatics tools. Medha also developed and taught several 2-hour mini-courses, which describe the effective use of a set of bioinformatics tools. The courses were taught more than 400 times to about 12,000 participants.

She conducts tutorials on using bioinformatics resources available through the NIH Library, NCBI's Databases and Tools for Data Mining, and other bioinformatics resources such as Biobase, DAVID, Ensembl, and the UCSC Genome Browser.

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## DESCRIPTION DU NOUVEAU SERVICE

Activité de formation, référence spécialisée et guide en ligne

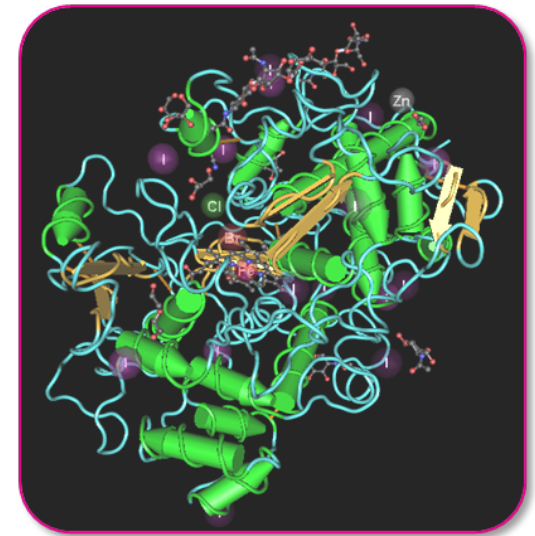
## AUTRES POSSIBILITÉS DE COLLABORATION

Veille informationnelle, EndNote, etc.



# Target clientele

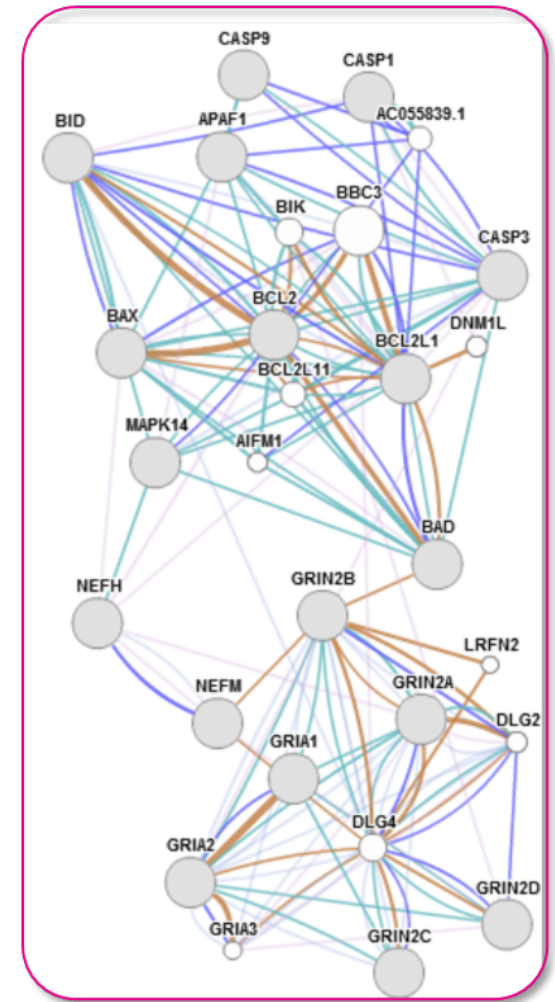
- **Molecular biology** researchers:
  - Graduates (M.Sc., Ph.D.) and post-docs
  - Professors
  - Laboratory personnel
- **Targeted** departments, Faculty of Medicine:
  - Biochemistry and Molecular Medicine
  - Physiology
  - Pathology and Cell Biology
  - Microbiology and Immunology



*3D view of a calcium channel*

# Consult with stakeholders

- Meeting with the **Computer Lab Manager** from the Biochemistry department – review of available bioinformatics tools
- **Phone calls/interviews** with heads of M.Sc. and Ph.D. graduate programs from targeted departments
- **Departmental meetings:** Biochemistry, Microbiology and Immunology
- Emails to targeted **student associations**



*Part of the amyotrophic lateral sclerosis gene network*

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Veille informationnelle

# «NCBI Databases» Workshop - Objectives

- Explore **most useful resources at NCBI**, including Gene, OMIM, CDD and BioSystems.
- Present differences between primary data sources and **value-added databases**.
- Emphasis on **practical exercises** to favor **discovery**.



Multiple protein sequence alignment

# Specialised Reference

- Help **find the appropriate database(s)** for the **information** sought.
- Optimize a **gene search** in PubMed.
- Some examples of questions asked:
  - “I want to use an siRNA cited in an article, but I don’t know where it is in the GenBank record given!” (Physiology M.Sc. student)
  - “I’m looking for articles on the M28668 gene but can’t find anything in PubMed!” (3<sup>rd</sup>-year Biochemistry student)
  - “Where can I find expression data for the NPM1 gene?” (Biochemistry Ph.D. student)



# Online Bioinformatics Guide

Guides par discipline

**Guides de cours**

• Retour à la page d'accueil •  
[Accès Admin]

**Explorer le sujet** Séquences et gènes Génomique Protéomique Systèmes Littérature

**Bases de données: comment s'y retrouver?**

**Tutoriel des principales ressources (Open Helix)**

Comment repérer parmi les **centaines de bases de données** disponibles celle qui vous convient? OpenHelix vous présente un [tour guidé](#) des principales ressources gratuites.

**Guide annuel de *Nucleic Acids Research***



Dans ce numéro spécial, *NAR* présente des **misés à jour** de bases de données établies ainsi que de **nouvelles ressources**.

Consultez également la **compilation des 1330 bases de données publiées dans NAR** au fil des ans: [2011 NAR Database Summary Paper Category List](#). Voir aussi le numéro spécial annuel sur les serveurs: [2010 Web Server Issue](#).

**Activités de formation**

La Bibliothèque de la santé vous propose une **exploration des bases de données du NCBI**. Pour des ateliers plus avancés, consultez le site de [Bioinformatics.ca](#) ([bourses disponibles](#)).

**Bases de données du NCBI**

[Bases de données du NCBI] 20 juin 2011  
Description : Cette formation propose un survol de plusieurs bases de données du NCBI en utilisant une approche pratique. Dans ...

\*\*Les liens s'ouvrent dans une nouvelle fenêtre\*\*

**Tutoriels**

» [OpenHelix: Genomics Search and Learn Portal](#)  
Propose une liste de [tutoriels gratuits](#) (icône verte) pour **apprendre à utiliser** les ressources repérées grâce au moteur de recherche. Diaporamas et exercices souvent disponibles. Le **bloque** propose

**Votre bibliothécaire**



**Natalie Clairoux**

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 Clavardez avec nous!

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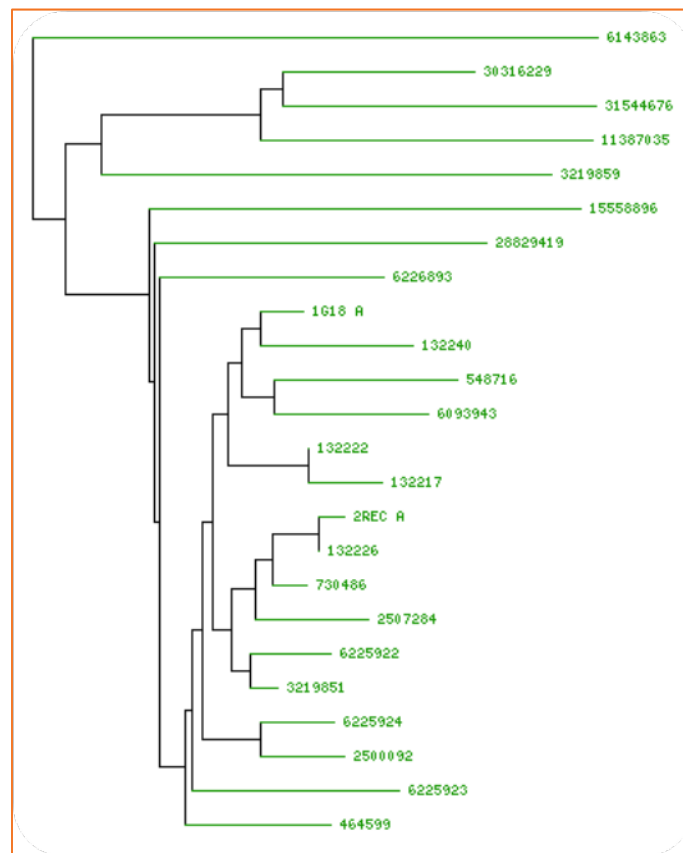
## EVALUATE SUCCESS

Pie charts galore!



# One-on-one reference: 2010 statistics

- Two appointments with graduate students.
- Half a dozen bioinformatics-related questions at the reference desk.
- Mostly: patrons who attended the NCBI databases workshop.



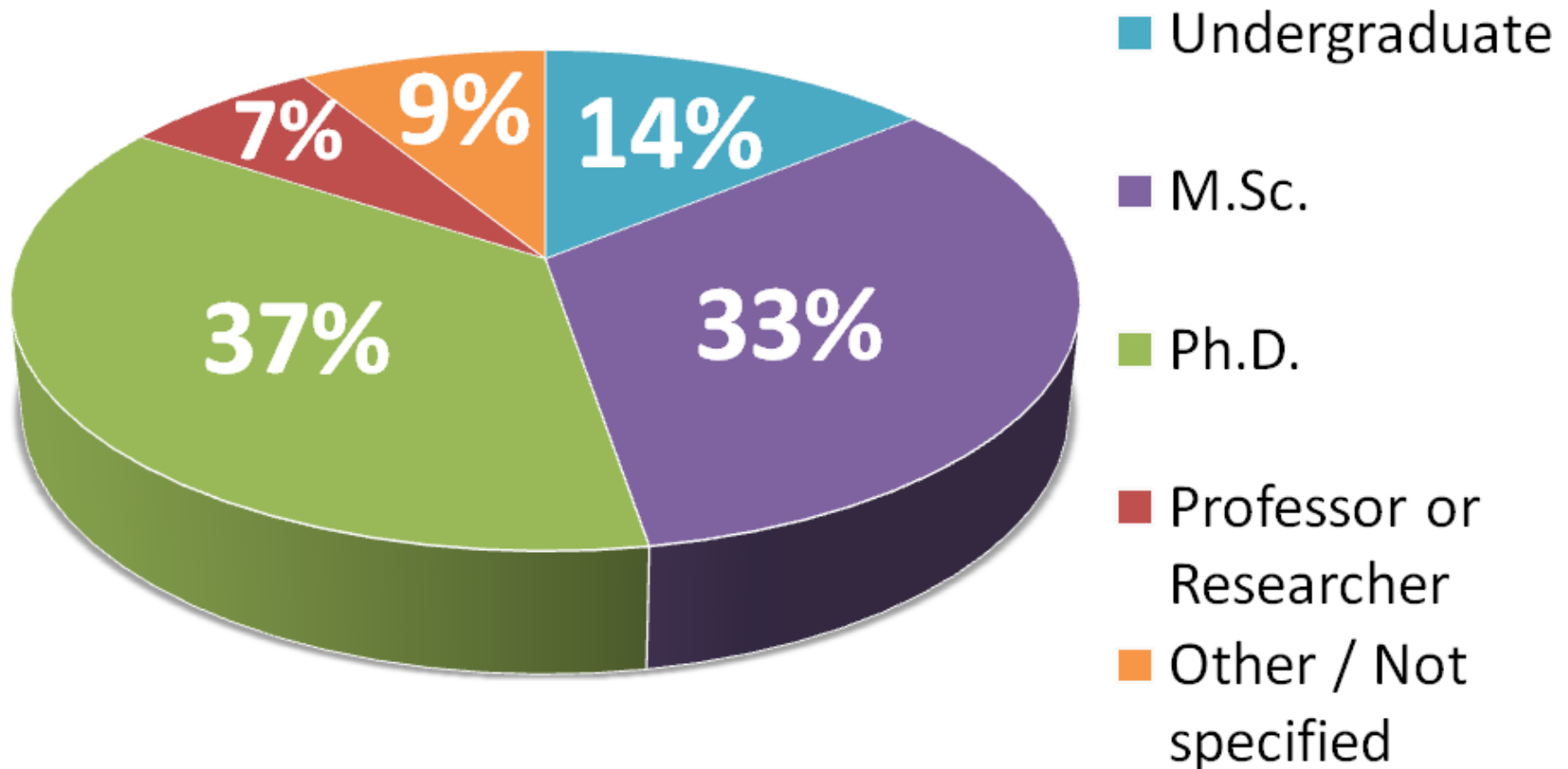
*Phylogenetic tree of RecA protein  
sequence alignment*







# Respondents to online workshop evaluation (n=55)



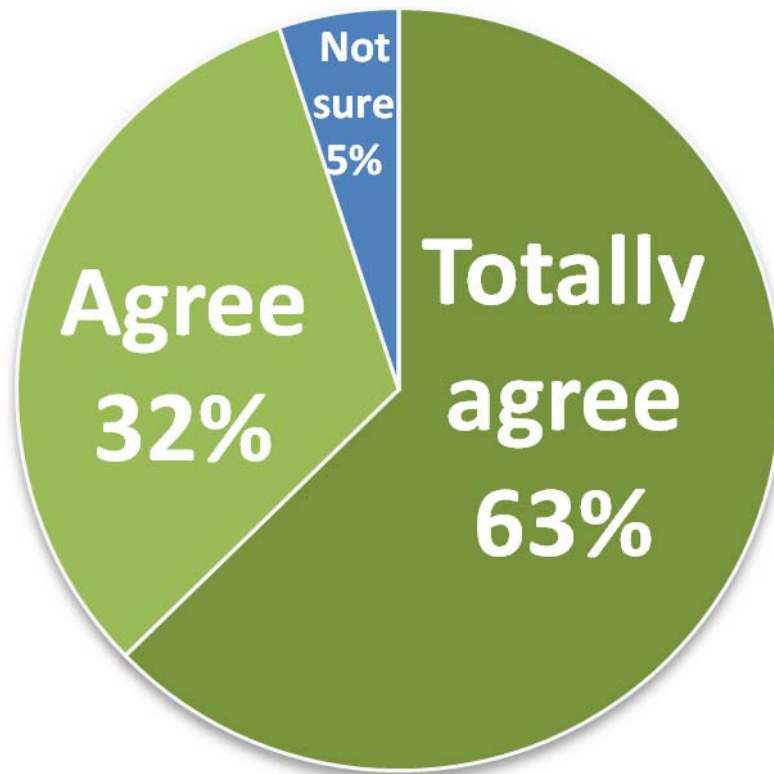


# Were the NCBI resources already used by respondents?

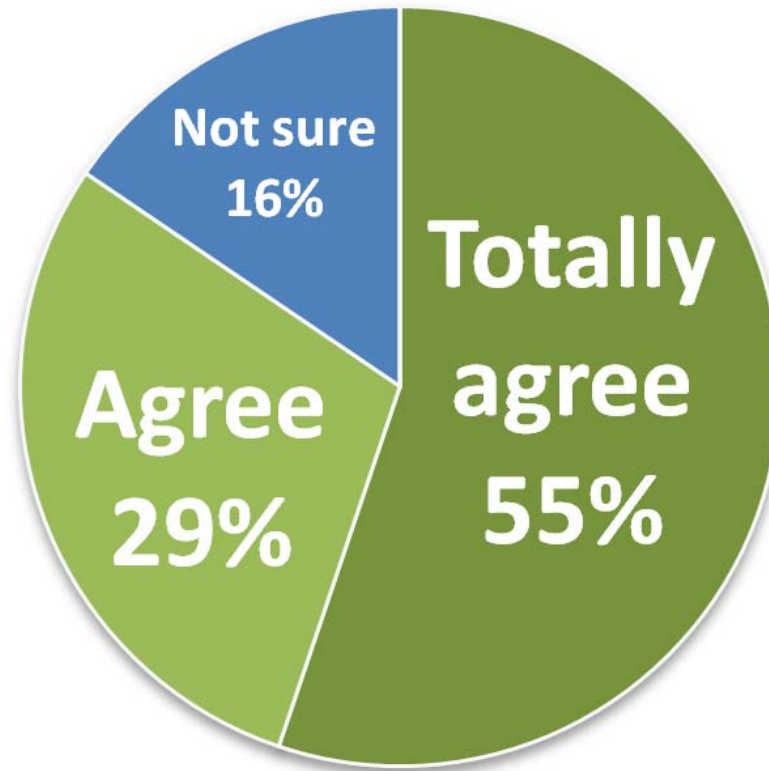




# Were the resources presented considered relevant?

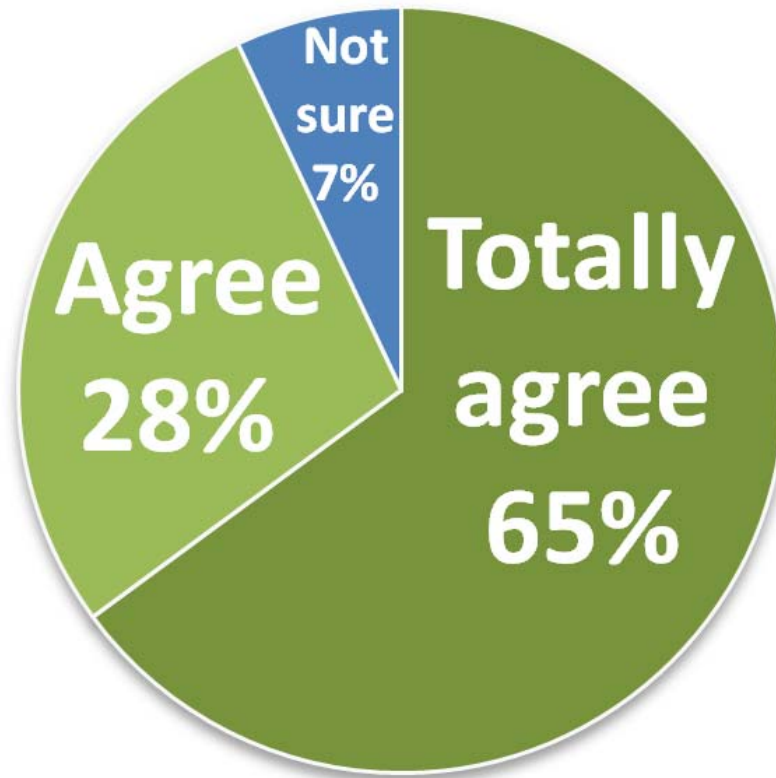


# Is the difficulty level of the workshop suitable to respondents?



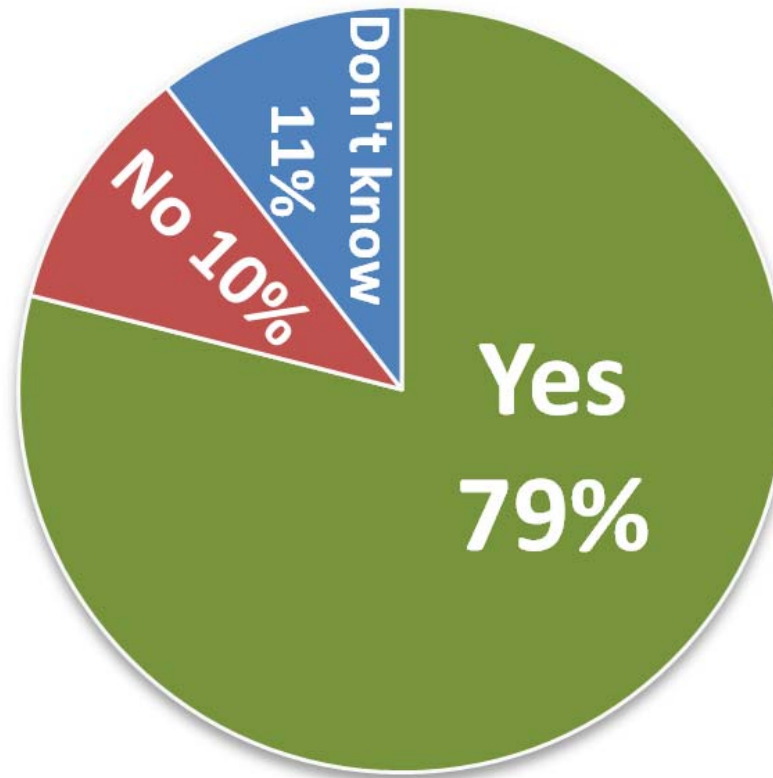


# Will respondents find more easily the information they need?



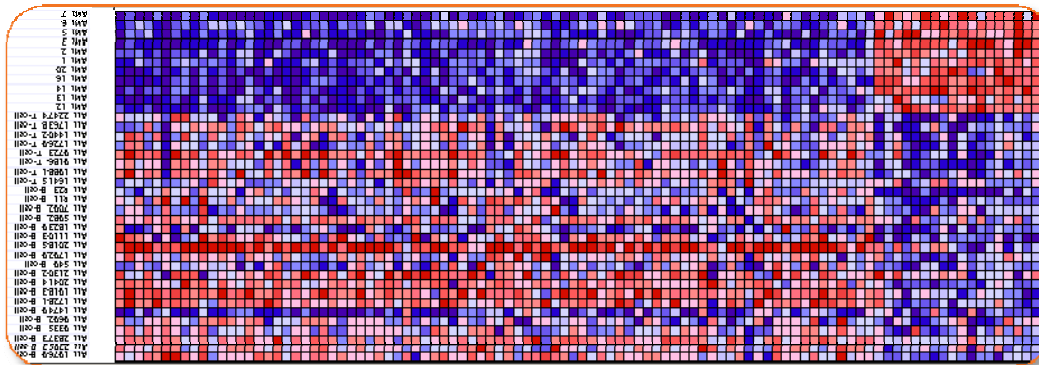


# Should the workshop be integrated in a course?



# Things to do next

- **Promote bioinformatics service** (student poster competitions, emails, other workshops)
- **Integrate workshop in various programs of study:** currently approaching various departments
- Add **complementary workshops** (BLAST, EBI resources)



*Heat map of gene expression*





# Dreams



OpenHelix  
tutorials



NCBI-  
sponsored  
workshops



GeneGO  
license



Blog and/or  
Twitter  
feed



Ingenuity  
license



# Bibliography

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