



# Hands-on VectorBase and Vector Genomics Workshop

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- Application deadline: July 11, 2017
- Acceptance notification: July 18, 2017
- When: September 18th to 22nd, 8:00 am to 5:00 pm.
- Location:  
Duduville Campus

International Centre for Insect Physiology and Ecology (ICIPE)

Nairobi, Kenya

## Workshop Programme:

### Day 1, 8:00 am - 5:00 pm

#### Introduction, finding data/information

8:00 - 8:30 am: General introduction to omics (lecture)

8:30 - 9:00 am: Overview of VectorBase's remit, tools and data (lecture):

- website navigation and
- available data types & downloads

#### 9:00 - 9:20 am: Coffee Break

9:20: - 9:50 am: Genome Browser: gene, transcript, protein and location pages. Exporting data (lecture)

9:50 - 12:00 pm: Data mining

- Search
- BioMart

#### 12:00 - 1:00 pm: Lunch



## Sequence tools

1:00 - 3:00 pm: Finding data:

- BLAST
- Clustal and Hmmer

## 3:00 - 3:20 pm: Coffee Break

## Next Generation Sequencing (NGS) & Galaxy

3:20 - 5:00 pm: NGS & Galaxy

- Introduction to NGS (lecture)
- Intro to NGS for transcriptomics (lecture)
- Galaxy basics (demo)
- Differential expression workflow (launch jobs)

## Day 2, 8:00 am - 5:00 pm

### Visualizing NGS data

8:00 - 10:00 am: NGS data analyses:

- Differential expression workflow (view results)
- Viewing alignment coverage in Galaxy and the genome browser
- Viewing SNP calls (precomputed results) and their genomic consequences

### 10:00 - 10:20 am: Coffee Break

### Comparative & functional genomics

10:20 - 12:00 pm: Comparative genomics

- Genomic alignments
- Gene trees, orthology & paralogy

### 12:00 - 1:00 pm: Lunch

1:00 - 3:00 pm: Functional genomics

- Introductory Concepts: microarray and RNAseq data (lecture)
- Expression Browser and Map



- Expression tracks in the Genome Browser

## **3:00 - 3:20 pm: Coffee Break**

### **Population biology**

3:20 - 5:00 pm: Finding and browsing genomic variation data

- Introductory Concepts: Single Nucleotide Polymorphisms (SNPs), insertions and deletions (INDELs) and microsatellites (lecture)
- Sample Explorer

## **Day 3, 8:00 am - 5:00 pm**

### **Population biology**

8:00 - 9:00 am: Simple Search and Browse

9:00 - 10:00 am: Map-based search and analysis of insecticide resistance (IR) data

#### **10:00 - 10:20 am: Coffee Break**

10:20 - 12:00 pm: Advanced Search

#### **12:00 - 1:00 pm: Lunch**

### **Genome and Gene annotations**

- 1:00 - 1:30 pm: Automatic annotation of genomes at VectorBase: gene set predictions, functional annotation and projecting gene descriptions (lecture)
- 1:30 - 2:30 pm: Web Apollo Demo and test in sand boxes

#### **2:30 - 2:50 pm: Coffee Break**

### **Wrap up**

2:50 - 5:00 pm:

- Q&A including a selection of pre-workshop research-related questions answered
- Forthcoming tools and data
- Group photo
- [Exit questionnaire](#) [9]
- Workshop certificates



## Day 4, Research Ethics, 8:00 am - 5:00 pm

Responsible conduct of research

Scientific Writing

- Manuscript Writing Guidelines
- Abstract Writing

## Day 5, Modeling, 8:00 am - 5:00 pm

- Modeling
- Geographic Information System, GIS

**Source URL:** <http://cebib.uonbi.ac.ke/content/hands-vectorbase-and-vector-genomics-workshop>

### Links:

- [1] <http://facebook.com/sharer.php?u=http://cebib.uonbi.ac.ke/content/hands-vectorbase-and-vector-genomics-workshop&t=Hands-on+VectorBase+and+Vector+Genomics+Workshop>
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- [8] <https://www.vectorbase.org/workshops/hands-vectorbase-and-vector-genomics-workshop>
- [9] [https://docs.google.com/forms/d/e/1FAIpQLSeP8oEPgTEq9f\\_GE2Pbj1JhqN\\_8vvNAkq7QJkfQhwd9XYOxBA/viewform](https://docs.google.com/forms/d/e/1FAIpQLSeP8oEPgTEq9f_GE2Pbj1JhqN_8vvNAkq7QJkfQhwd9XYOxBA/viewform)