**Rabies Accessible Genomic Epidemiology (RAGE) Workshop**

*Capacity Building for In-Country Genomic Epidemiology to Underpin One Health Surveillance.*

Venue: Nigeria Centre for Disease Control, Abuja

Date: 12th – 16th December, 2024

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| **OPENING CEREMONY**  *Venue: Ajuji Greenwich Hotel* | | |
| **Day 1 – Monday, 12th February, 2024** | | |
| **TIME** | **ACTIVITIES** | **SPEAKER** |
| 8:30 – 9:00 AM | Registration | All |
| 0930 | National Anthem | All |
| 9:30- 9:45 | Welcome remarks |  |
| 9:45 – 10:30 | Goodwill messages | NCDC, FMAFS, FMHSW, NVRI, ECOWAS, ACEGID, APHA, WHO, FAO, WOAH, US CDC, AFENET, FarmAlert, NVMA, VCN. |
| 10:30 – 10:45 | Opening remarks | NCDC director |
| 10:45- 11:00 | Keynote message | Prof Tomori |
| 11:00 – 11:15 | Rabies, One Health & the 2030 countdown | Prof. Katie Hampson |
| 11:15 – 11:45 | Progress and prospects for RABV genomic research | Dr. Kirstyn Brunker |
| 11:45 – 12:00 | Ahmadu Bello University (ABU) Centre of excellence, its roles, mandates, and activities on the control and prevention of NTDs in Nigeria | Prof. YKE Ibrahim (Centre Leader ACENTDFB ABU) |
| 12:00- 12:15 | Question and Answer session | All |
| 12:15 – 12:45 | Short Presentations:  Making genomic surveillance deliver for rabies  A framework for predicting the impacts of rabies control and prevention strategies in East Africa  Genomic surveillance in the Philippines: an outbreak investigation | Dr. Kathryn Campbell  Martha Luka  Criselda Bautista |
| 12:45 – 13:00 | Question and Answer session |  |
| 13:00 – 13:15PM | Vote of thanks | All |
| 13:30 – 14:30 | *Lunch* | All |
| ~15:00 | Pictures |  |
| *Trainers and Trainees only* | | |
| Late afternoon | Demo: Lab-in-a-suitcase | *Kirstyn Brunker* |
| *5:00– 5:30PM* | *Tea break & adjourn* |  |

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| **TRAINING WORKSHOP**  *Venue: NCDC Referenc*  *e lab, Gaduwa, Abuja* | | |
| **Day 2 – Tuesday, 13th February** | | |
| **TIME** | **ACTIVITIES** | **SPEAKER** |
| 9:00-9:15 | Workshop introduction | *Kirstyn Brunker* |
| 9:15-9:35 | Sample preparation | *Kirstyn Brunker* |
| 9:35 – 9:50 | NCDC laboratory safety | *Ogarega Daudu (NCDC)* |
| 10:00- 10:30 | Overview of RAGE sample-sequence-interpretation workflow | *Criselda Bautista* |
| 10:30 – 11:00 | General Q&A |  |
| 11:00-11:30 | Introduction to Nanopore Sequencing | *Kirstyn Brunker* |
| *12:30 – 14:00* | *Lunch* |  |
| 14:00 – 17:30 | Lab masterclass sessions:   * SPRI beads (Essel Bautista) * Multiplex PCR (Kathryn Campbell) * Fluorometer (Quantus) quantification (Martha Luka) * Nanopore flowcells (Kirstyn Brunker) | *All lab trainers* |
| *17:30* | *Tea break & Finish* |  |
| **Day 3 – Wednesday, 14th February** | | |
| 8:30-9:00 | Recap of Day 2 / Day 3 overview | *Kirstyn Brunker* |
| 9:00-10:00 | Lab masterclass sessions (*continued*) | *All lab trainers* |
| 10:00 – 12:30 | Lab practical: Nanopore sequencing library preparation   * End-prep * Barcoding ligation * Clean-up |
| *12:30 – 13:30* | *Lunch* |  |
| 13:30 – 16:30 | Lab practical: Nanopore sequencing library preparation   * Post barcoding Quantification * Adaptor ligation * Clean-up * Final library Quantification | *All lab trainers* |
| 16:30-17:30 | Nanopore sequencing & monitoring run   * Flowcell primed & loaded * MinKNOW set-up and monitoring * RAMPART overview | *Kirstyn Brunker & Essel Bautista* |
| *17:30* | *Tea break & Finish* |  |
| **Day 4 – Thursday, 15th February** | | |
| 8:30-9:15 | Recap of Day 3 & additional explainers | *Kirstyn Brunker* |
| 9:15-9:30 | Bioinformatics in action | *Sandeep Kasaragod* |
| 9:30-9:45 | A brief introduction to conda | *Kirstyn Brunker* |
| 9:45-10:30 | Computer practical: Install a conda environment | *All trainers (Lead: Sandeep Kasaragod)* |
| 10:30-10:45 | Introduction to the command line | *Sandeep Kasaragod* |
| 10:45-12:30 | Computer practical: Command line basics | *All trainers (Lead: Sandeep Kasaragod)* |
| *12:30 – 13:30* | *Lunch* |  |
| 13:30-13:50 | Overview of sequence data | *Kirstyn Brunker* |
| 13:50-15:00 | Computer practical: Running a bioinformatic pipeline | *All trainers (Lead: Sandeep Kasaragod)* |
| 15:00-15:15 | Introduction to alignments | *Martha Luka* |
| 15:15-16:00 | Computer practical: Sequence alignment | *All trainers (Lead: Martha Luka)* |
| 16:00-16:20 | The importance of metadata | *Essel Bautista* |
| 16:20-16:40 | An introduction to phylogenetics | *Kathryn Campbell* |
| 16:40 – 17:30 | Computer practical: The basics of phylogenetics | *All trainers (Lead: Kathryn Campbell* |
| 17:30 | *Tea break & Finish* |  |
| ***Day 5 – Friday, 16th February*** | | |
| 8:30-8:45 | Day 4 recap / Day 5 overview | *Kirstyn Brunker* |
| 8:45-9:10 | Phylogenetics: models and trees | *Kathryn Campbell* |
| 9:10-10:10 | Computer practical: Tree building and annotation | *All trainers (Lead: Kathryn Campbell* |
| 10:10-10:25 | An introduction to molecular clocks | *Martha Luka* |
| 10:25-11:15 | Computer practical: molecular clocks | *All trainers (Lead: Martha Luka)* |
| 11:15– 11:30 | Overview of RABV-GLUE (demo) | *Kirstyn Brunker* |
| 11:30 – 11:45 | Introduction to lineage classification: MADDOG | *Kathryn Campbell* |
| 11:45-12:30 | Computer practical: Classifying clades and lineages | *All trainers (Lead: Kathryn Campbell)* |
| *12:30 - 1:30* | *Lunch* |  |
| 13:30 - 14:30 | Computer practical: Interpreting the results | *Kathryn Campbell* |
| 14:30 – 16:30 | Breakout discussion groups: Translating results to stakeholders | *All trainers (Lead: Kathryn Campbell)* |
| 16:30-17:00 | **Workshop close** | *Kirstyn Brunker* |