



# ICGEB

International Centre for Genetic Engineering and Biotechnology

## ICGEB Course "Plant-beneficial function prediction of *Bacillus subtilis* species through NGS technology" November 06-13, 2022; Sfax, Tunisia



REPUBLIQUE TUNISIENNE  
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Ministère de l'Enseignement Supérieur  
et de la Recherche Scientifique  
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### Detailed scientific program 06-13 November 2022

#### Sunday 06<sup>th</sup> November 2022

Participant venues

#### Monday 07<sup>th</sup> November 2022

08:30-10:30: Tagmentation of Input DNA, PCR Amplification (**Dr. Raida Zribi Zghal** and **Dr. Olfa Frikha Gargouri**: Center of Biotechnology of Sfax)

10:30-11:00: Workshop opening and Welcome cocktail

11:00-11:15: President of the University of Sfax

11:15-11:30: General Director of the Center of Biotechnology of Sfax: Prof. Slim Tounsi

11:30-13:15: Conference (**Prof. Vittorio Venturi**: International Centre for Genetic Engineering and Biotechnology, Trieste, Italy)

13:15-14:15: Lunch

14:15-17:30: PCR Clean up and library normalization (**Dr. Raida Zribi Zghal** and **Dr. Olfa Frikha Gargouri**)

#### Tuesday 08<sup>th</sup> November 2022

08:30-10:30: Library pooling for MiSeq Sequencing (**Dr. Raida Zribi Zghal** and **Dr. Olfa Frikha Gargouri**)

10:30-11:00: Coffee break

11:00-13:15: Conference (**Prof. Vittorio Venturi**)

13:15-14:15: Lunch

14:15-16:00: Introduction to UNIX and Linux, Perl Tutorial presentation (**Dr. Kais Ghedira**: Pasteur Institute of Tunis, Tunisia)

16:00-16:30: Coffee break

16:30-17:30: The NGS revolution and its impact on genomics / The evolution of *Bacillus subtilis* and other *Bacilli* on genomic perspectives (**Dr. Kais Ghedira**)

#### Wednesday 09<sup>th</sup> November 2022

08:30-09:30: Participant presentations

9:30-11:00: Conference (**Dr. Heiko Liesegang**: Georg-August University Goettingen, Germany)

11:00-11:30: Coffee break

11:30-13:15: Practical demonstration: New genome assembly (*Bacillus subtilis*) – Objective and general pipeline presentation (**Dr. Kais Ghedira**)

13:15-14:15: Lunch

14:15-16:00: Practical demonstration: New genome assembly (*Bacillus subtilis*) – Objective and general pipeline presentation (**Dr. Kais Ghedira**)



16:00-16:20: Coffee break

16:20-17:30: Practical demonstration: New genome assembly (*Bacillus Subtilis*) – Objective and general pipeline presentation (**Dr. Kais Ghedira**)

#### **Thursday 10<sup>th</sup> November 2022**

08:30-10:30: Conference; New genome assembly – Objective and general pipeline presentation (**Dr. Raida Zribi Zghal**)

10:30-11:00: Coffee break

11:00-13:15: Practical demonstration: New genome assembly (*Bacillus subtilis*) – NGS file format and quality control (**Dr. Heiko Liesegang**)

13:15-14:15: Lunch

14:15-16:00: Conference (**Dr. Kais Ghedira**)

16:00-16:30: Coffee break

16:30-17:30: Participant presentations.

#### **Friday 11<sup>th</sup> November 2022**

08:30-10:30: Plant-beneficial function prediction of *Bacillus subtilis* species (**Dr. Kais Ghedira**)

10:30-11:00: Coffee break

11:00-13:15 Practical demonstration: PCR Gaps (how to design the primers for gaps) and how to explore results, annotation and validation (**Dr. Heiko Liesegang**)

13:15-14:15: Lunch

14:15-16:00: Practical demonstration: New genome assembly (Detailed analysis of the NGS data of novel *Bacillus* strain: Genome assembly and *in silico* plasmids prediction (plasmids and Chromosome) (**Dr. Heiko Liesegang**)

16:00-16:30: Coffee break

16:30-17:30: Identification of plant-beneficial functions of *Bacillus subtilis* sequenced strains from NGS data: Secondary metabolite clusters identification (Antismash 4.0, Prism 3, Napdos, NP.Search, and Bagel3) and genome mining (**Dr. Heiko Liesegang**)

#### **Saturday 12<sup>th</sup> November 2022**

08:30-10:30: Identification of plant-beneficial functions of *Bacillus subtilis* sequenced strains from NGS data: Secondary metabolite clusters identification (Antismash 4.0, Prism 3, Napdos, NP.Search, and Bagel3) and genome mining (**Dr. Heiko Liesegang**)

10:30-11:00: Coffee break

11:00-13:15: Discussion and meeting closure

13:15-14:15: Lunch

14:15: Free time.

#### **Sunday 13<sup>th</sup> November 2022**

Departure