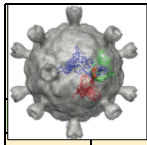

Theoretical and practical metagenomic approaches to viral discovery

Prof. Arthur Gruber - Institute of Biomedical Sciences - University of São Paulo - Brazil
Prof. Manja Marz - Friedrich Schiller University Jena - Germany

Time	Monday - Oct 21	Tuesday - Oct 22	Wednesday - Oct 23	Thursday - Oct 24	Friday - Oct 25
08:30-09:00	Welcome announcements	Open time for discussion with instructors	Open time for discussion with instructors	Open time for discussion with instructors	Open time for discussion with instructors
09:00-10:15	Metagenomics - challenges for viral detection and discovery - **Prof. Arthur Gruber**	Viral genome reconstruction and provirus finding with profile HMMs - **Prof. Arthur Gruber**	SVM (miRNAs and virus) **Prof. Manja Marz**	Introduction into RNA world **Prof. Manja Marz**	LRIscan/Circos (long-range Interactions of segmented viruses) - **Prof. Manja Marz**
10:15-10:45	Coffee break, open time for discussion with instructors	Coffee break, open time for discussion with instructors	Coffee break, open time for discussion with instructors		Coffee break, open time for discussion with instructors
10:45-12:15	Profile HMMs of viral markers **Prof. Arthur Gruber**	Progressive assembly using profile HMMs as seeds and `GenSeed-HMM` program - **Prof. Arthur Gruber**	Random Forrest (to detect viral miRNAs) **Prof. Manja Marz**	Folding algorithm: MacCaskill and Partition functions **Prof. Manja Marz**	Covariance models **Prof. Manja Marz**
12:15-13:30	Lunch time	Lunch time	Lunch time	Lunch time	Lunch time
13:30-15:30	Retrieving public sequences, multiple sequence alignment - **Prof. Arthur Gruber**	Finding proviruses in bacterial genomes with `e-Finder` program - **Prof. Arthur Gruber**	PCA (for viral host classification) **Prof. Manja Marz**	RNAfold (to determine the secondary structures of RNA viruses) - **Prof. Manja Marz**	Infernal to detect viral elements from (meta-)genomic samples - **Prof. Manja Marz**
15:30-16:00	Coffee break, open time for discussion with instructors	Coffee break, open time for discussion with instructors	Coffee break, open time for discussion with instructors	Coffee break, open time for discussion with instructors	Coffee break, open time for discussion with instructors
16:30-18:00	Profile HMM construction with `TABAJARA` / screening datasets with `HMM-Prospector` - **Prof. Arthur Gruber**	Introduction to machine learning methods **Prof. Manja Marz**	CNN (for viral host classification) **Prof. Manja Marz**	Vienna RNA Package (for virus host interactions) **Prof. Manja Marz**	Final discussion and certificate distribution **Prof. Arthur Gruber and Prof. Manja Marz**
19:00-21:00				Dinner and social event with all attendees **Prof. Arthur Gruber and Prof. Manja Marz**	

Activity:	Place:
Discussion	ICB2 - Auditorium
Theoretical lecture	ICB2 - Auditorium
Short lecture+Practical session	ICB4 - Room 5
Practical session	ICB4 - Room 5
Social event	To be defined
Short lecture+Practical session	ICB4 - Room 6
Theoretical lecture	ICB4 - Room 3

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