BIOMOL STRUCT

GUEST LECTURE SERIES

WHEN STRUCTURE MEETS FUNCTION: A STUDY ON THE LONG NONCODING RNA FIRRE

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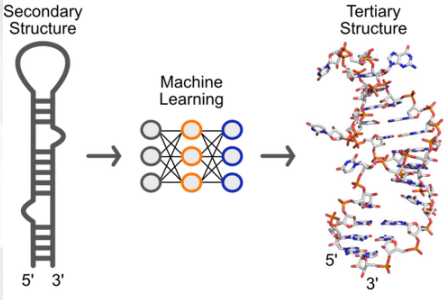
MC1.D.01.007 (MC1.D. Campus der Med Uni Graz Ost, 1st floor, Neue Stiftingtalstraße 6, 8010 Graz)

STRUCTURAL MODELING OF RNA USING MACHINE LEARNING METHODS



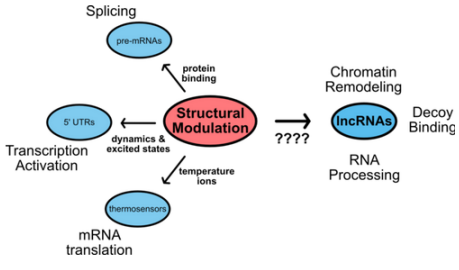
The successful application of deep learning methods to predict RNA structures depends on large-scale annotated data. Unfortunately, the number of resolved RNA tertiary structures is still insufficient for this purpose. Our group uses deep learning methods that build upon experimental data to model tertiary structures of RNA.

Long-term goal: modeling experimentally-supported RNA 3D structures

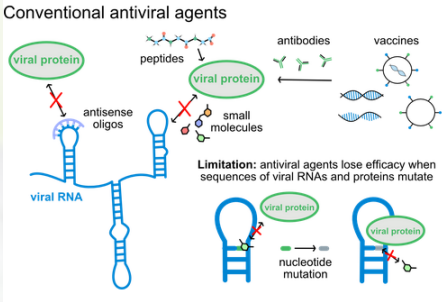
CONFORMATIONAL DYNAMICS OF LONG NONCODING RNAS

Long noncoding RNAs (lncRNAs) are multi-functional and can regulate numerous biological processes. LncRNA structures are conformationally dynamic, but the drivers of lncRNA conformational switches are broadly unknown. Our group focuses on identifying the factors that regulate lncRNA structure, and investigating whether specific lncRNA structural conformations are associated with distinct biological processes.

Long-term goal: classifying lncRNA structure and dynamics



INHIBITION OF VIRAL INFECTIONS USING STRUCTURE-BASED DRUG DESIGN



Many RNA viral replication processes rely on structured RNA-protein interactions. When viral RNA genomes experience mutational drift, compensatory mutations preserve the structures adopted by protein-binding RNAs. Our group focuses on disrupting the conserved RNA-protein interactions that are required for viral replication.

Long-term goal: developing persistent antiviral agents that inhibit viral infection