

Securing the NMX Userbase

NMX STAP

2023-10-16

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Neutron crystallography drivers



☺Hydrogens are visible

☺No radiation damage

☹Large crystals needed

☹Data collection takes weeks

☹Few instruments available

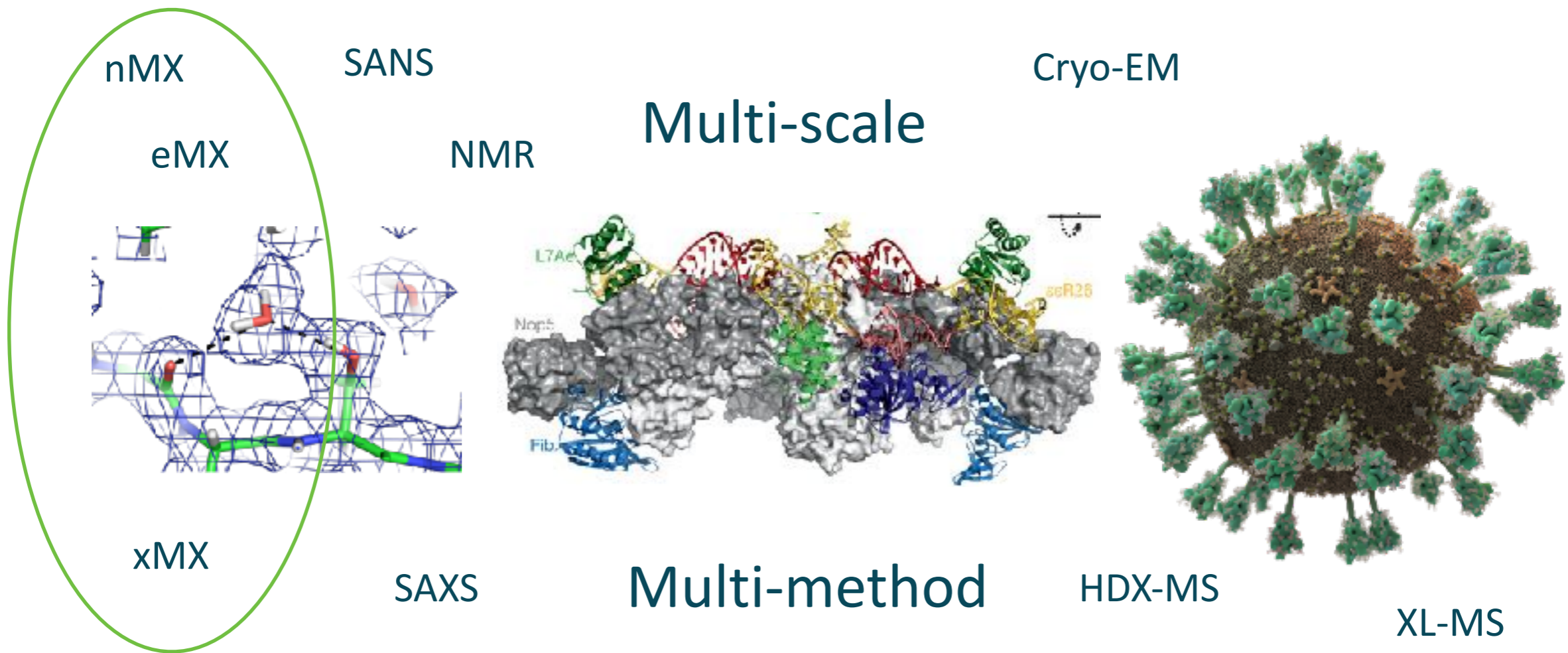
Where are hydrogens important?

Enzyme mechanisms

Protein-ligand interactions

Proton transport across membranes

Neutron Crystallography Integrative Structural Biology



Neutron MX addresses biochemistry questions

Practical challenges in neutron MX projects



- Large amounts of protein needed (maybe perdeuterated)
- Optimising crystal growth takes time
- Beam time takes time to obtain

**Risky project for a
PhD or Post-doc!**

Similar to XFELs

How to lower the threshold to start a neutron MX project?



- Educate both PIs and PhD students and Post-docs (future PIs)
- Provide seed funding for starting a project
- Provide support with specific methods

Realistic picture of what is needed for success

e.g. 6 month projects in HALOS, HALRIC

DEMAX

- Difficult to estimate when hot commissioning is sufficiently complete for data collection
- Not fair to delay PhD/Post-doc projects due to NMX availability
- Rely on in-house (DEMAX) grown crystals of well-understood systems (e.g. carbonic anhydrase, triose phosphate isomerase) for early science
- Allow “friendly user” access if timelines match

Manage
expectations on
beam reliability
etc.

Questions?

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