



MIT-Harvard
Center for Magnetic Resonance



PI's

R.G. Griffin and G.Wagner

M. Hong and J.J. Chou

FBML-MIT and Harvard Medical
School

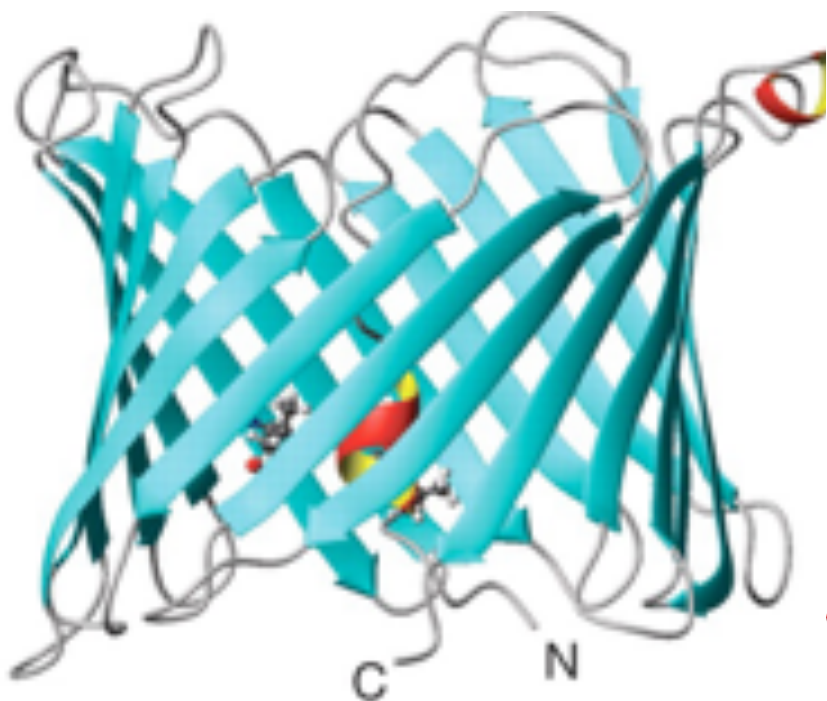
Biomolecular, instrumentation,
methods development and materials
science

700, 750, 800 and 900 MHz

NIH P41 and R01's

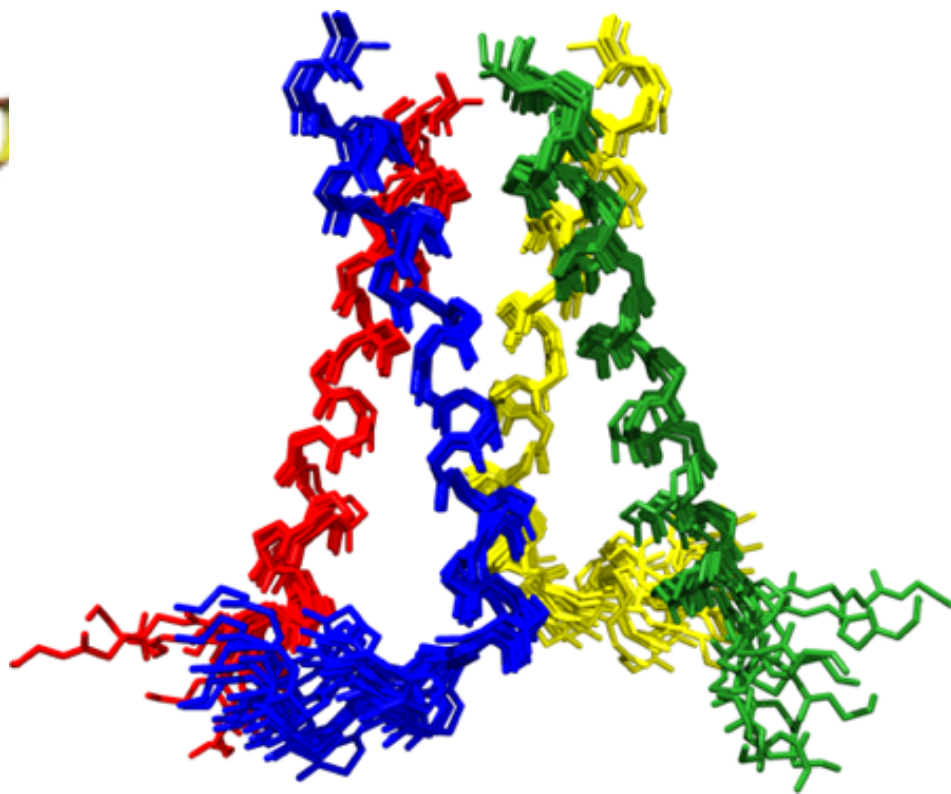
Membrane Proteins

Solution NMR
VDAC



Hiller, et al. 2010

Magic Spinning NMR
M2₁₈₋₆₀ Dimer-of-dimers

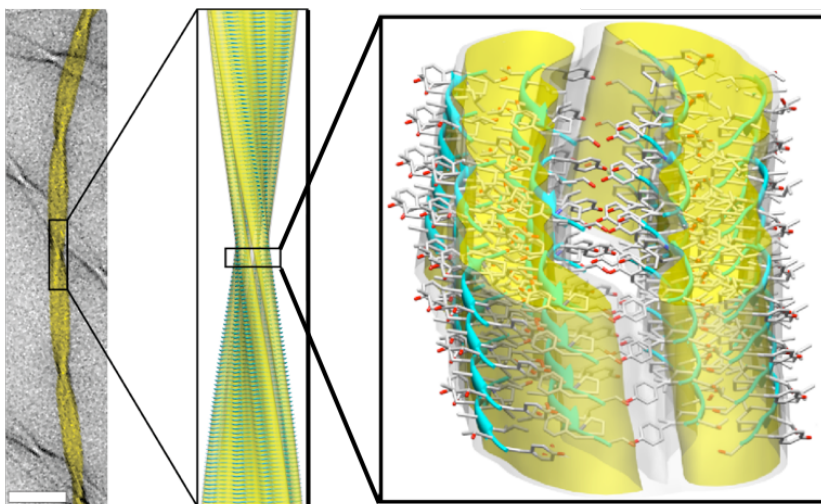


Andreas, et al. JACS 2015

Amyloid Proteins

$TTR_{105-115}$

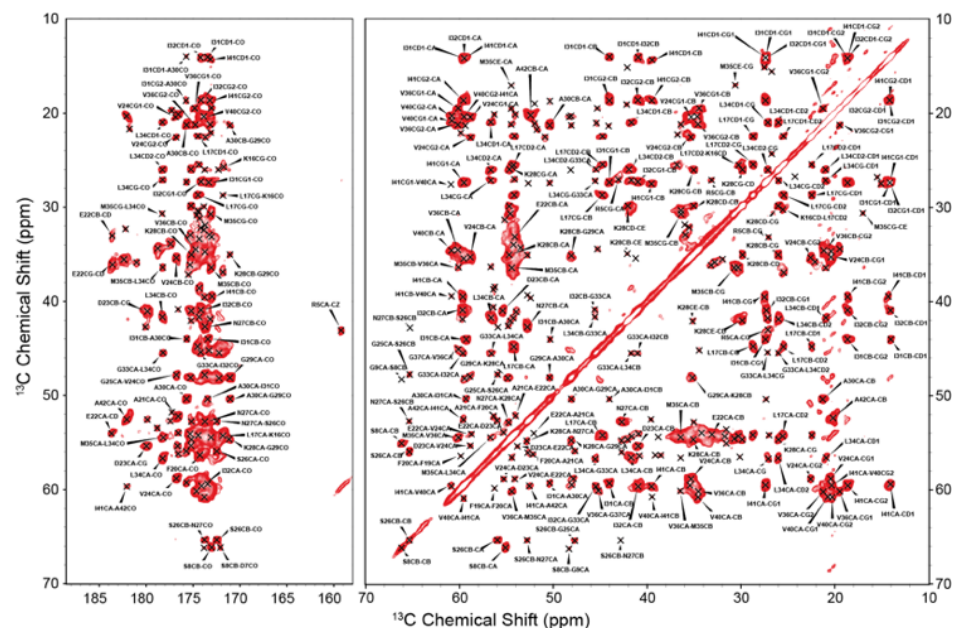
$A\beta_{1-42}$



CryoEM

Electron
Density

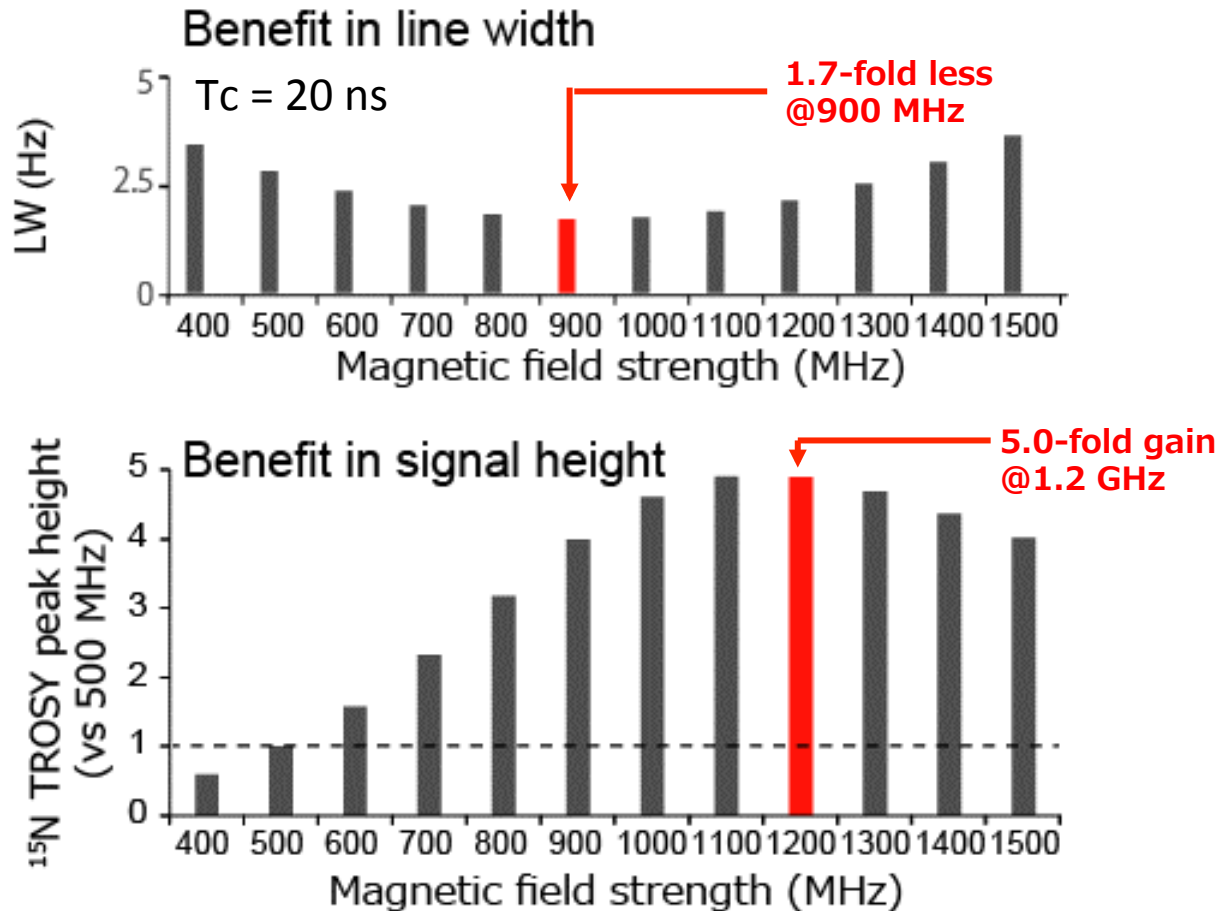
MAS NMR Atomic
Resolution Structure



Fitzpatrick, et al. PNAS 2013

Colvin, et al, JACS 2015

^{15}N TROSY shows maximal benefit @900 MHz for resolution and @1.2 GHz for sensitivity

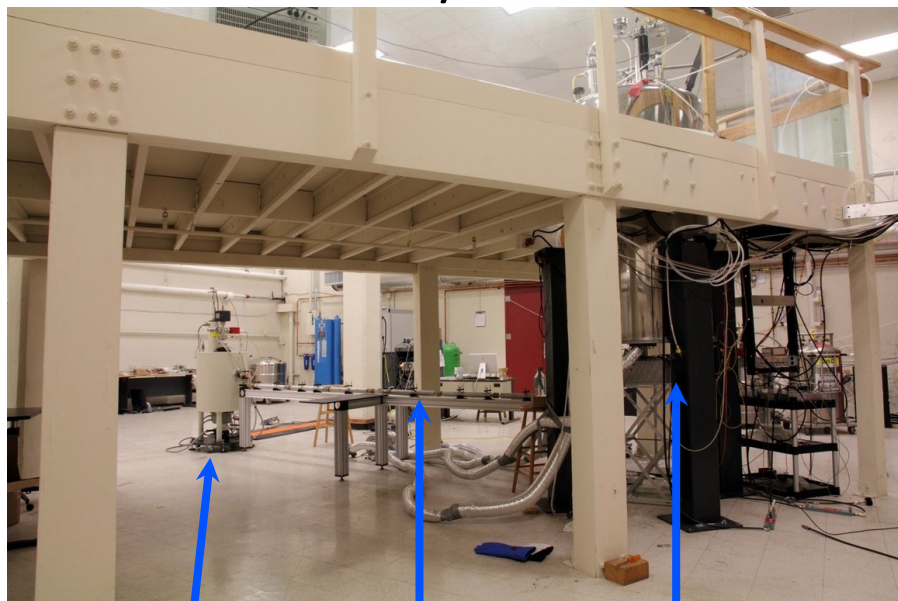


Combination of ^{15}N TROSY & higher field magnet would give additional gain.

High Field DNP Spectrometers

MIT

700 MHz/460 GHz



460 GHz Gyrotron
Corrugated Waveguide
700 MHz NMR Magnet

Bruker

800 MHz/ 527 GHz



800 MHz NMR Magnet
Corrugated Waveguide
527 GHz Gyrotron

- *Developed with NIH support @ MIT !*
- *Commercialized by Bruker-Biospin*

Collaborative, Training and Service

- Our last NIH proposal listed ...
 - 49 Collaborative research projects
 - 18 User research projects

Training

- Winter school on biomolecular SSNMR
- EPR School
- Student and postdocs