

1D TOCSY

- Total Correlation Spectroscopy: Transfer of NMR Magnetization *via* J Coupling (Through Bond)
- Excitation of One Proton (Selective Pulse) is Followed by Transfer to Protons that are J-Coupled to It
- Multiple Transfers (Jumps) Move the Excitation Down a Chain of J-Coupled Protons:
 $\underline{\text{C}}\text{H}_a \rightarrow \text{CH}_b \rightarrow \text{CH}_c \rightarrow \text{CH}_d$
- Spectrum is Recorded and Shows Selected Peak and All Other Peaks from Protons in the J-Coupled System
- Transfer of Excitation Happens During TOCSY “Mixing”: A Long Series of NMR RF Pulses
 - DPGSE Puts the Selected Proton’s Net Magnetization in the x - y Plane (“excited”)
 - Mixing is a Repeated Loop of 49 Pulses at Medium RF Power
 - Longer Mixing Time Means More J-Coupling “Jumps” of Excitation
 - Readout: Simply Record the FID (Net Magnetization is Already in the x - y Plane)