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**Figure S5:** Peak heights from several 3 mm probes that were first normalized to DSS (100%) and then divided by the average amplitude of 4 separate 5 mm probe measurements. The effect of high power saturation (dark green) can be seen compared to lower power (light green). The red and yellow bars show the result of using a pulse sequence that does not utilize saturation for water suppression. No frequency dependency was found when saturation was not used. The initial 3 mm probe data (blue) show the largest perturbation as the observed peaks approach the solvent position. Mich = University of Michigan; UofT = University of Toronto.