

## NMR Frequency Depends on the Observe Nucleus

- The  $^1\text{H}$  Frequency is the “Name” of the Spectrometer:

Unity-300: 300 MHz    DRX-500: 500 MHz

Gemini-200: 200 MHz    AV-III-400: 400 MHz

- Different Nuclei Have Different NMR Frequencies:

On the Unity-300:  $^1\text{H}$  is 300 MHz,  $^{13}\text{C}$  is 75 MHz

$^2\text{H}$  is 46.05 MHz,  $^{19}\text{F}$  is 282.23 MHz

- These Ratios Are the Same on All Instruments:

On the DRX-600:  $^1\text{H}$  is 600 MHz,  $^{13}\text{C}$  is 150 MHz

$^2\text{H}$  is 92.1 MHz,  $^{19}\text{F}$  is 564.46 MHz

- Note that  $^{13}\text{C}$  Frequency is Always One-Fourth of  $^1\text{H}$  Frequency:

	$^1\text{H}$	$^{13}\text{C}$
Gemini-200:	200	50
Unity-300:	300	75
AV-III-400:	400	100
DRX-500:	500	125
Inova-600:	600	150

- One Part per Million is Always One-Millionth of the *Observe* Frequency. Example: Unity-300  $^{13}\text{C}$  Observe, 1 ppm = 75 Hz