# What is it?

1. Chromatography
   - Separate mixture into components
   - Comparison to authentic samples
2. Spectroscopy
3. Spectrometry

→ Identify components

# Infrared (IR) Spectroscopy

Identification of compounds

Based on molecular vibrations

- Stretching and bending of chemical bonds
- Energy change match that of IR light

# Infrared (IR) Spectroscopy

Irradiate a molecule with IR light of the correct frequency

➡ Molecule starts to vibrate

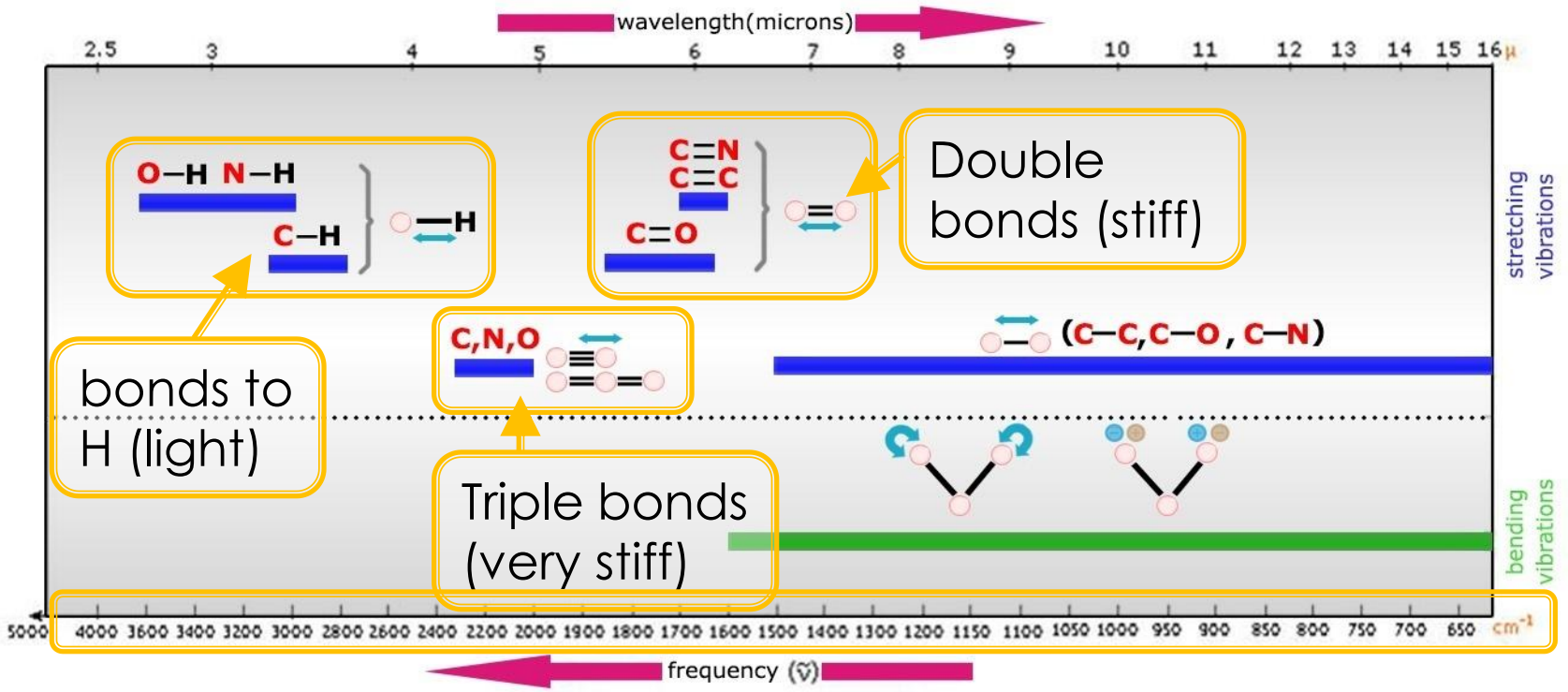
# Infrared (IR) Spectroscopy

Stretching frequency depends on

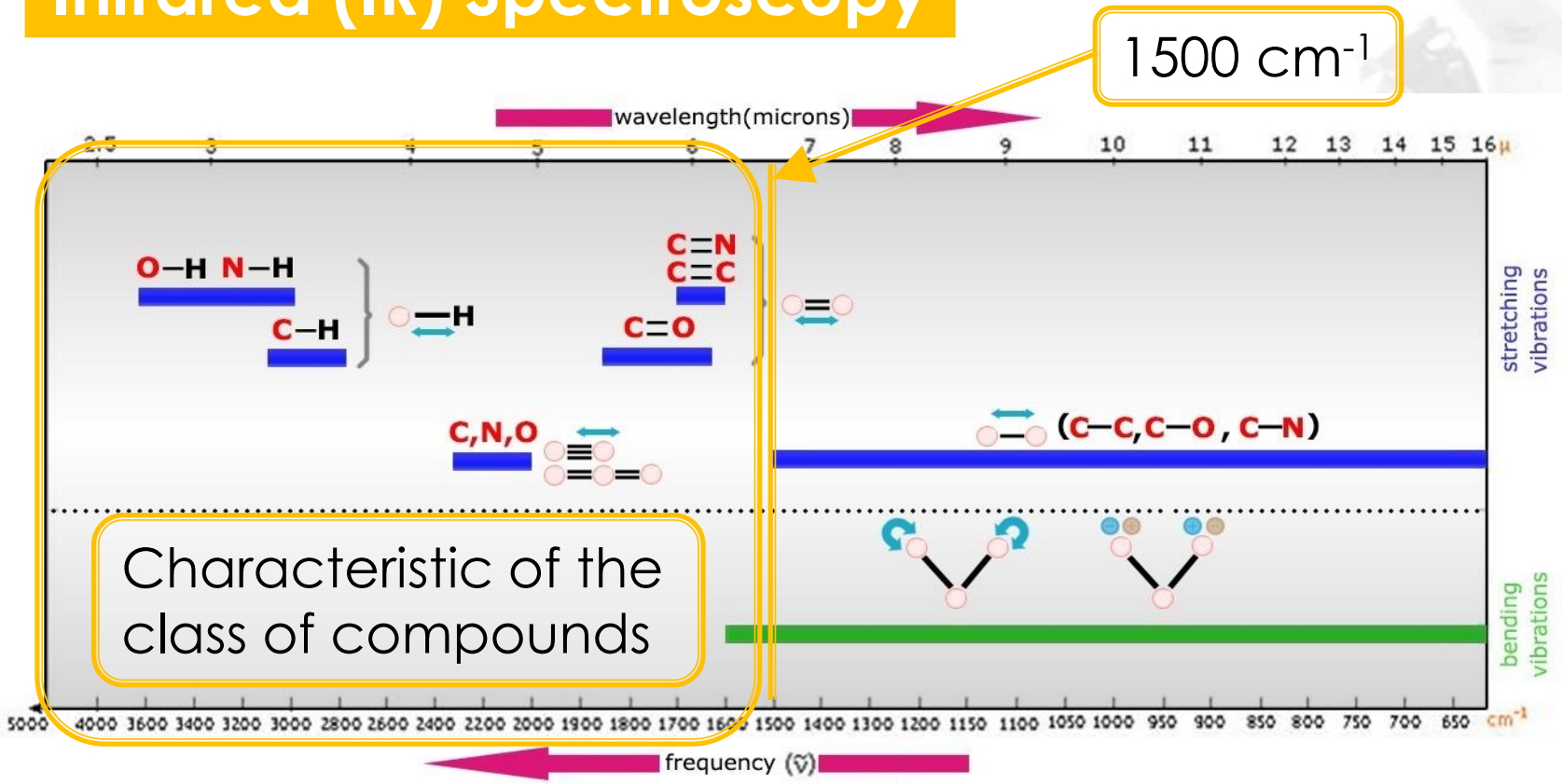
1. Masses of atoms involved
2. Stiffness of the bond

Single bonds < Double bonds < Triple bonds

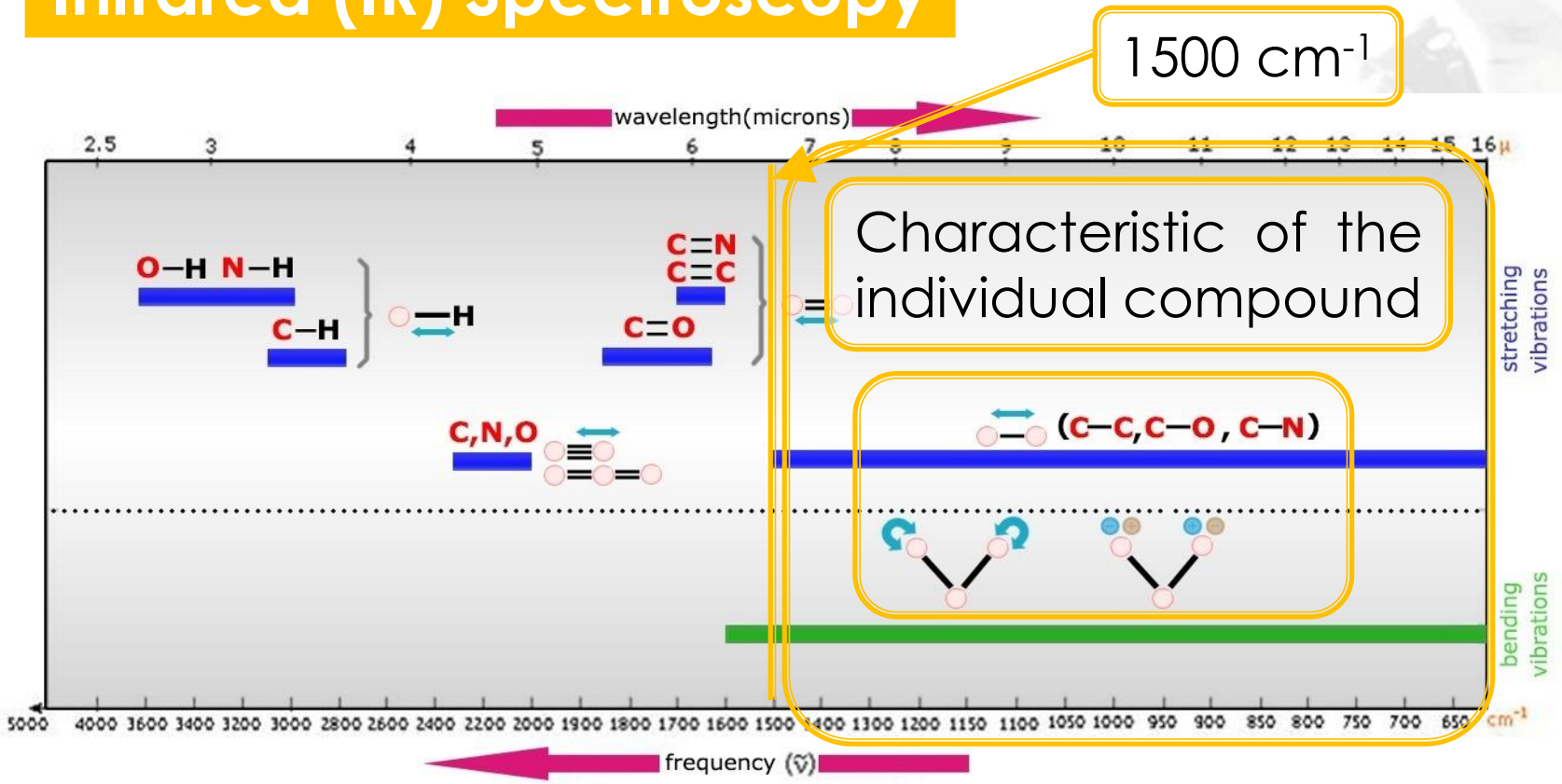
# Infrared (IR) Spectroscopy



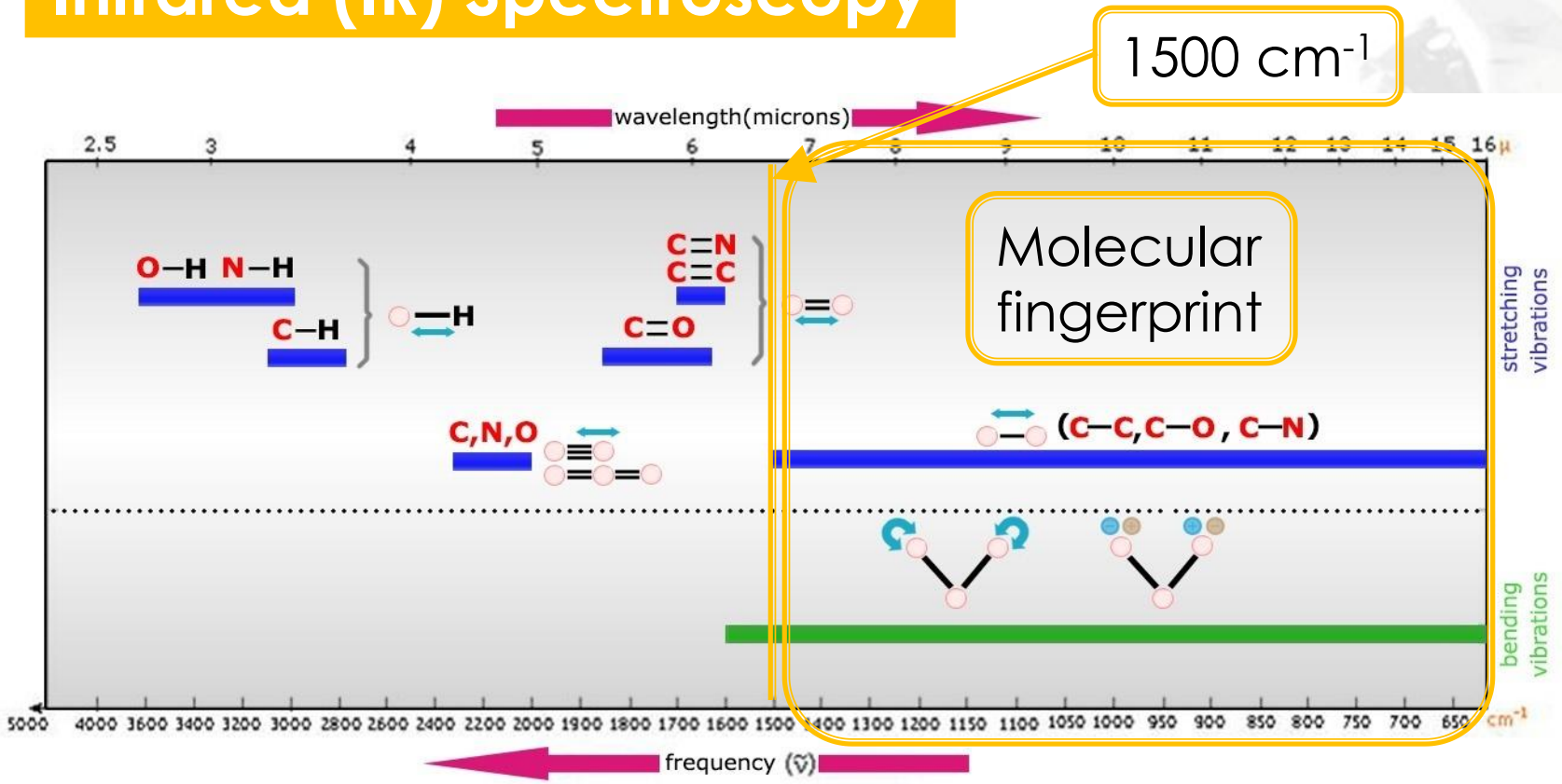
# Infrared (IR) Spectroscopy



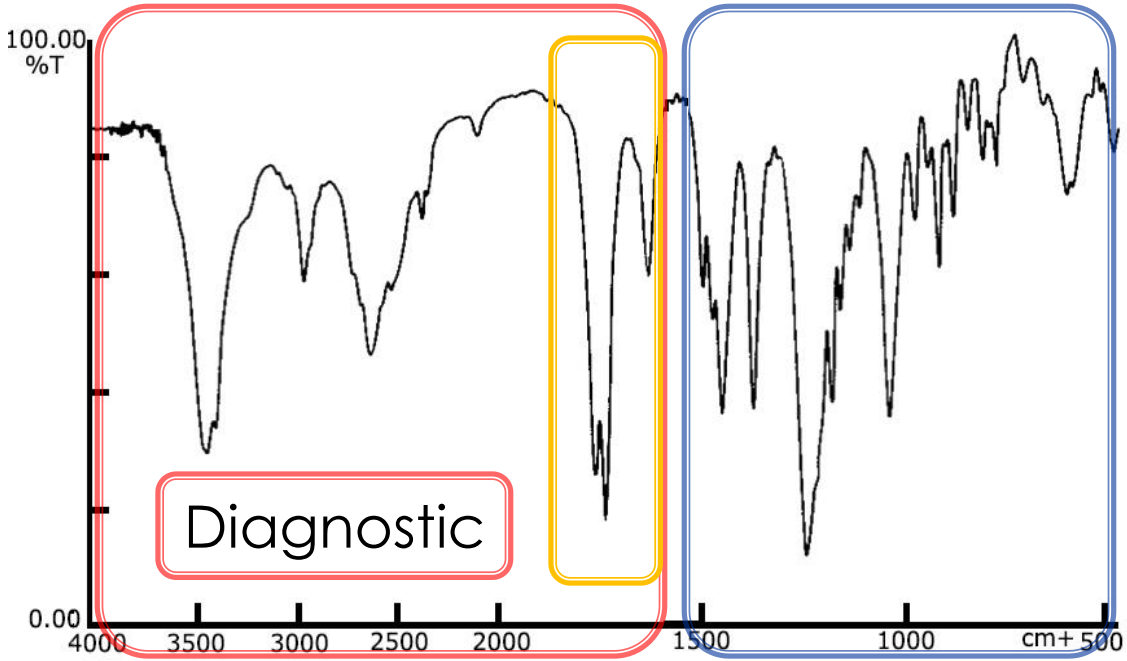
# Infrared (IR) Spectroscopy

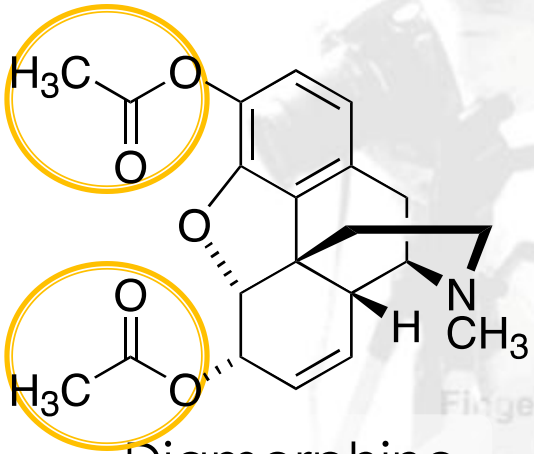


# Infrared (IR) Spectroscopy



# IR spectrum of diamorphine




Diamorphine

"Fingerprint region"