

Oral Presentations

- **Introduce the Topic**
- **Why the Topic is Relevant**
- **Relation to Organic Chemistry**
- **Details of the Topic**
- **Conclusions**
- **References**

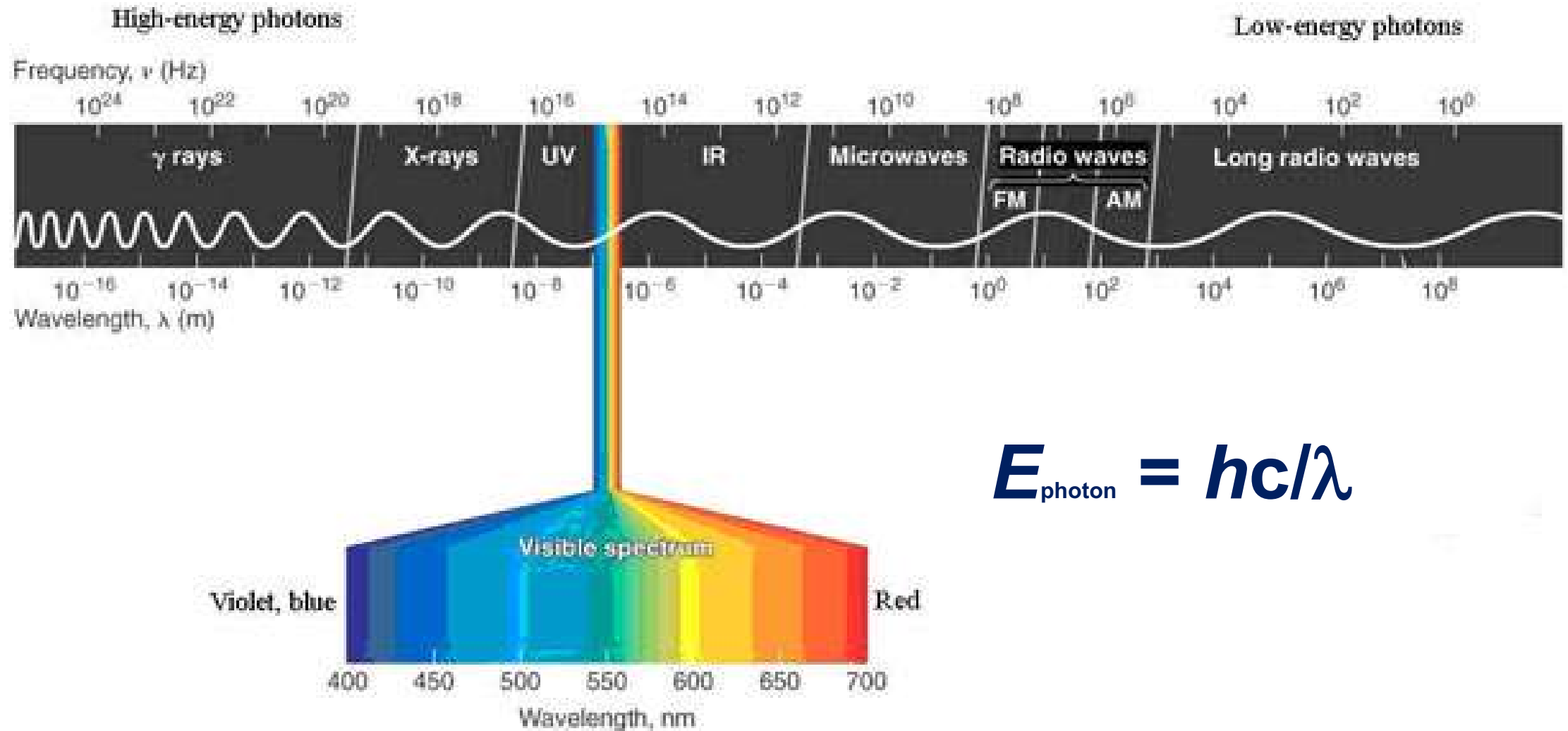


You green blooded, inhuman, pointed eared... HOBGOBLIN!

Green Humanoid Blood

Pure Science Fiction... Or Is it Possible?

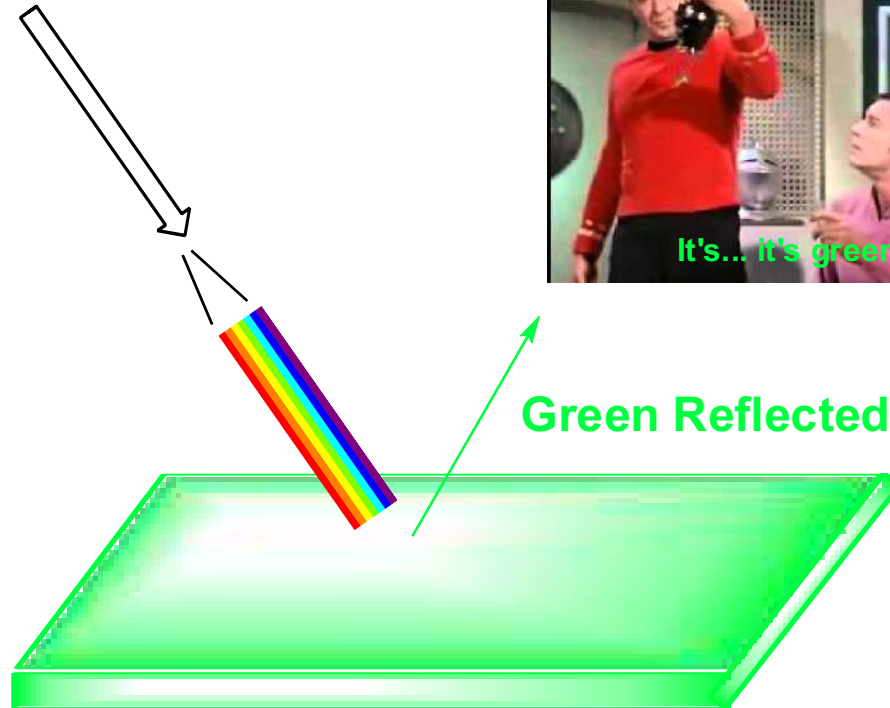
Light and Color



$$E_{\text{photon}} = hc/\lambda$$

How Do We See Color?

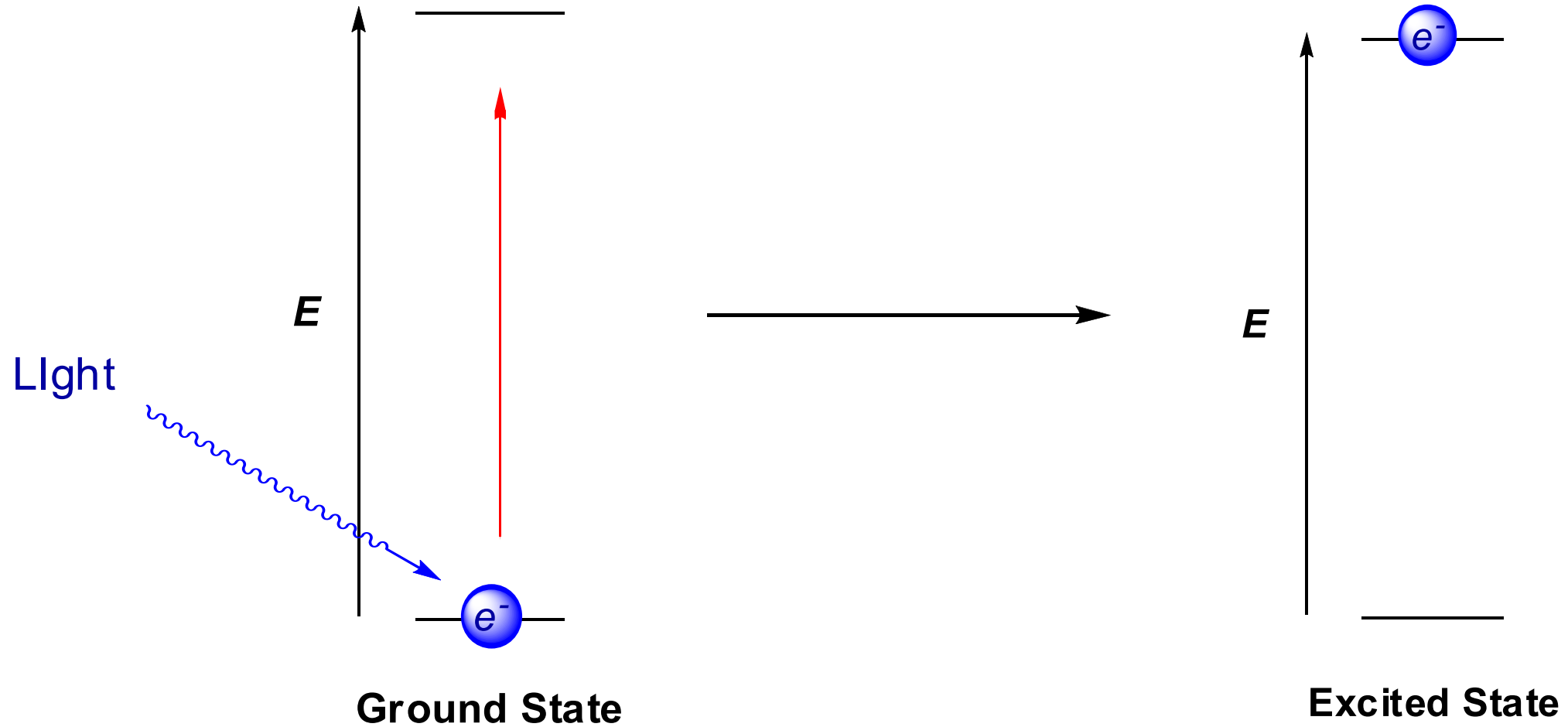
White Light



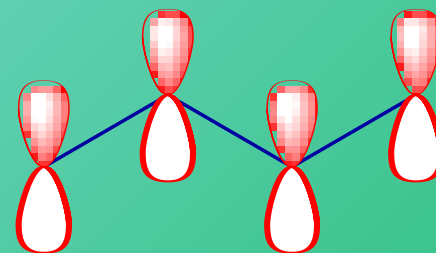
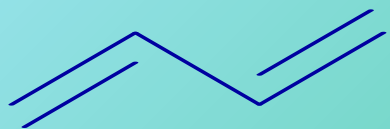
Green Reflected

All But Green Absorbed

How It Works – Nanoscale Model

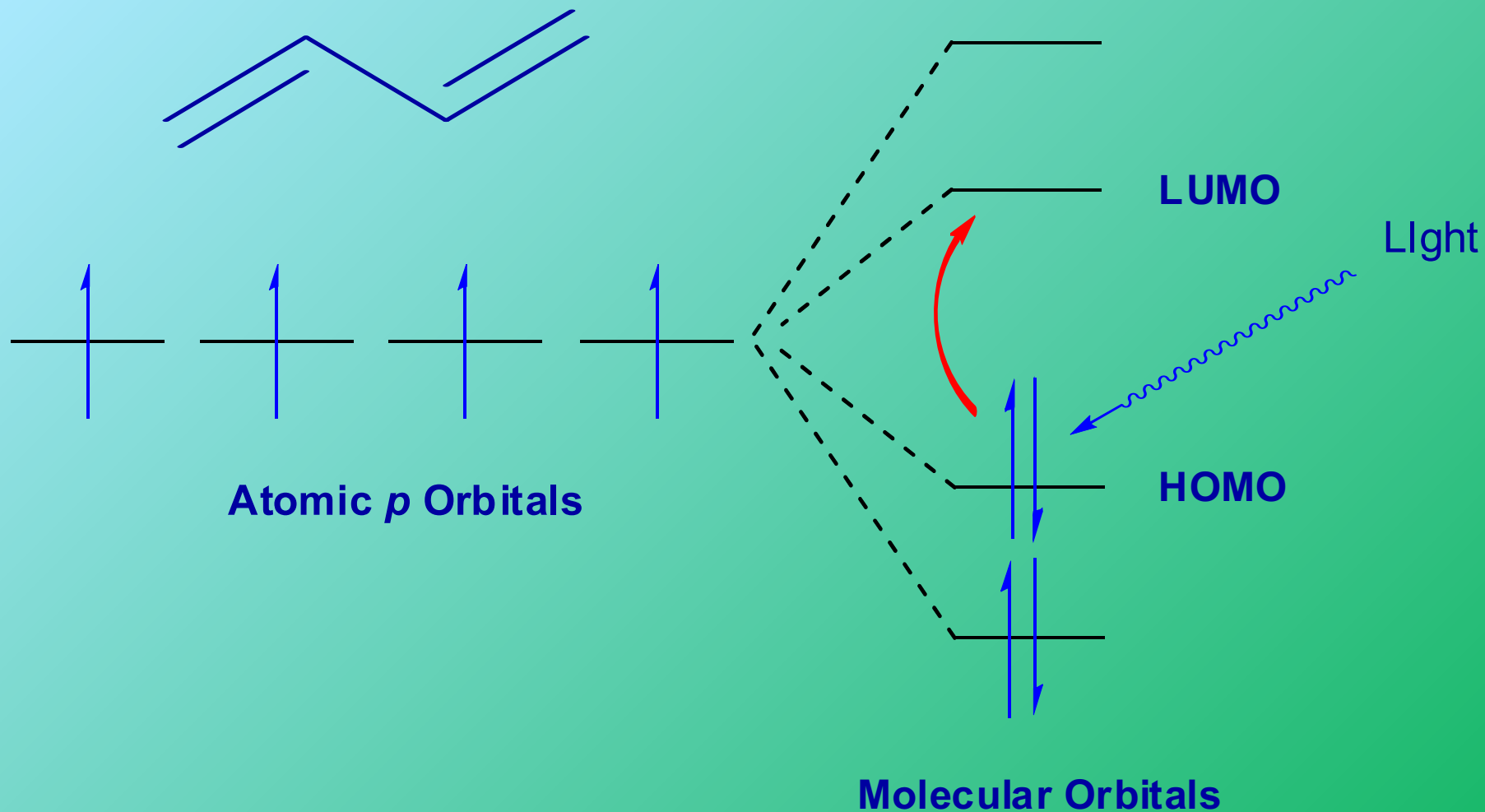


Conjugated Pi Systems

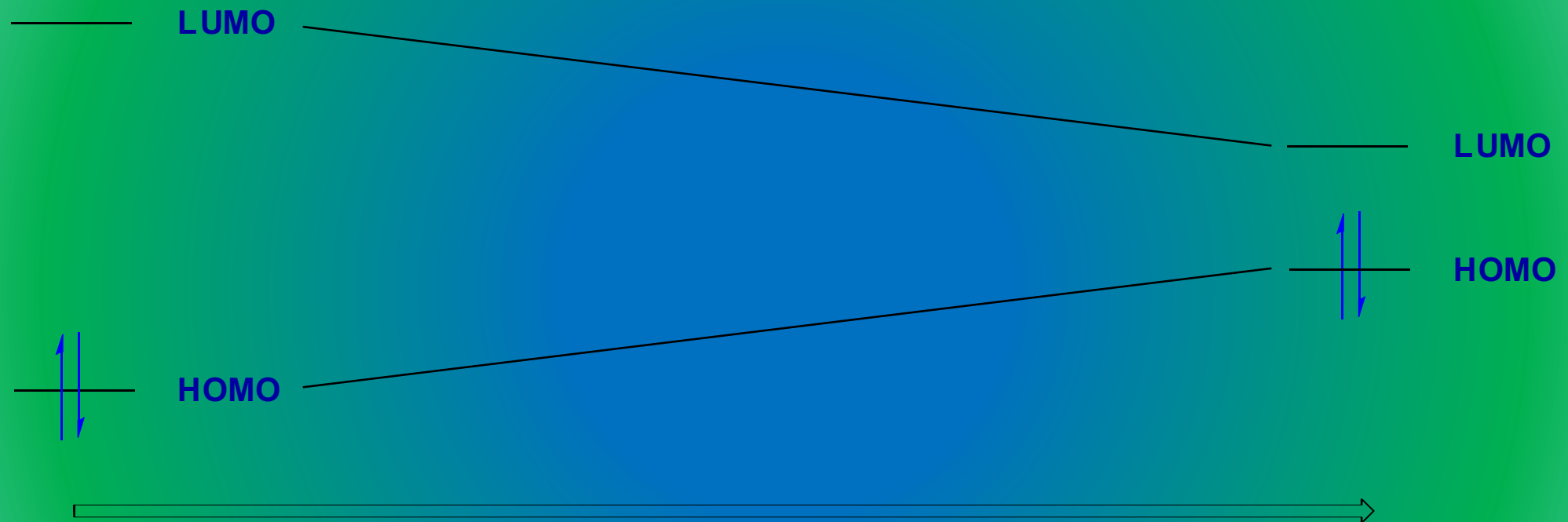


Buta-1.3-diene

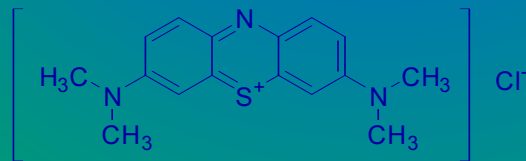
Conjugation and Absorbance



Extending Conjugation



Extended Conjugation



Methylene Blue



Human Blood

Plasma

- Glucose
- Proteins
- Hormones
- Minerals

Blood Cells

- RBC (erythrocytes)
- WBC (leukocytes)
- Platelets (thrombocytes)

Red Blood Cells: Erythrocytes

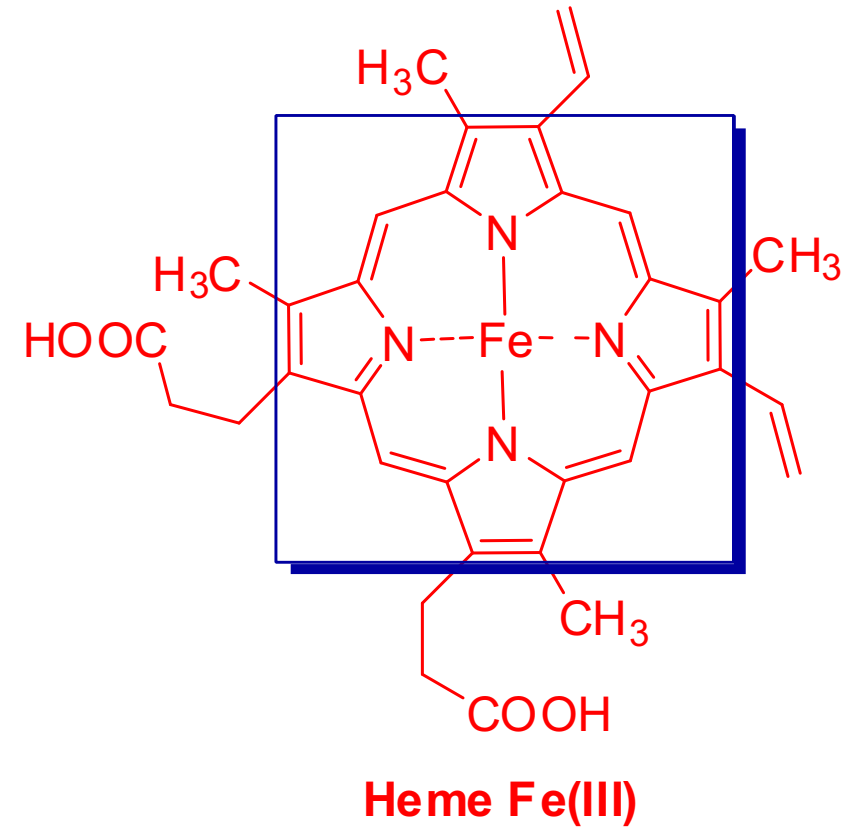
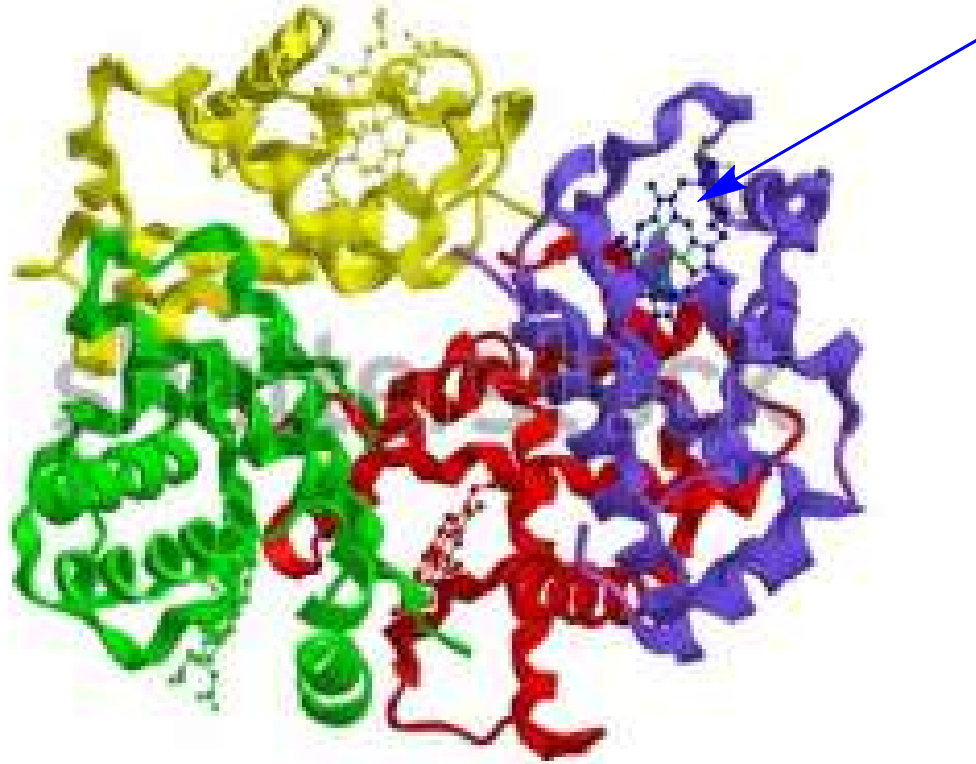
- No Nucleus
- No Organelles
- Carry Hemoglobin for Oxygen Transport

Hemoglobin

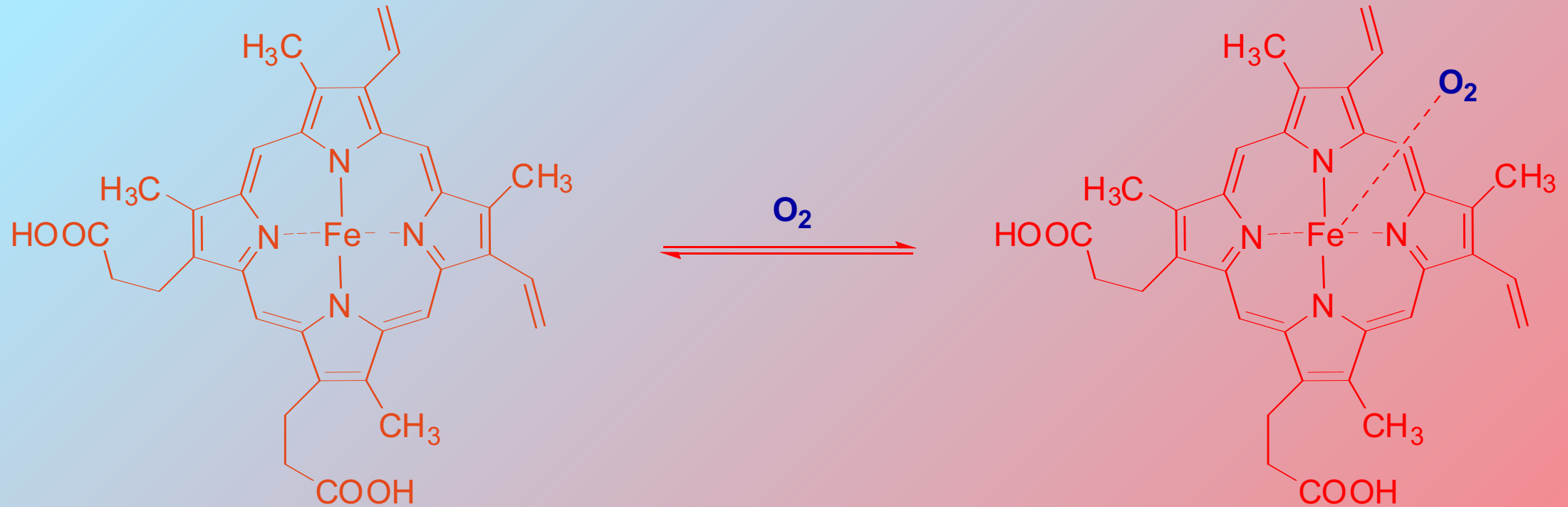


Red bl

Hemoglobin Structure and Heme



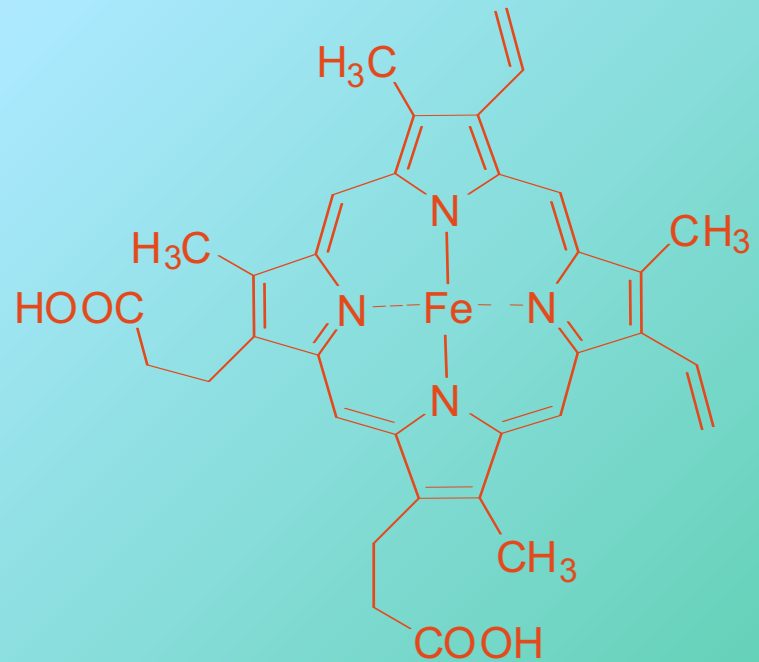
Heme, Oxygen, and Color



Green Blood? The Skink

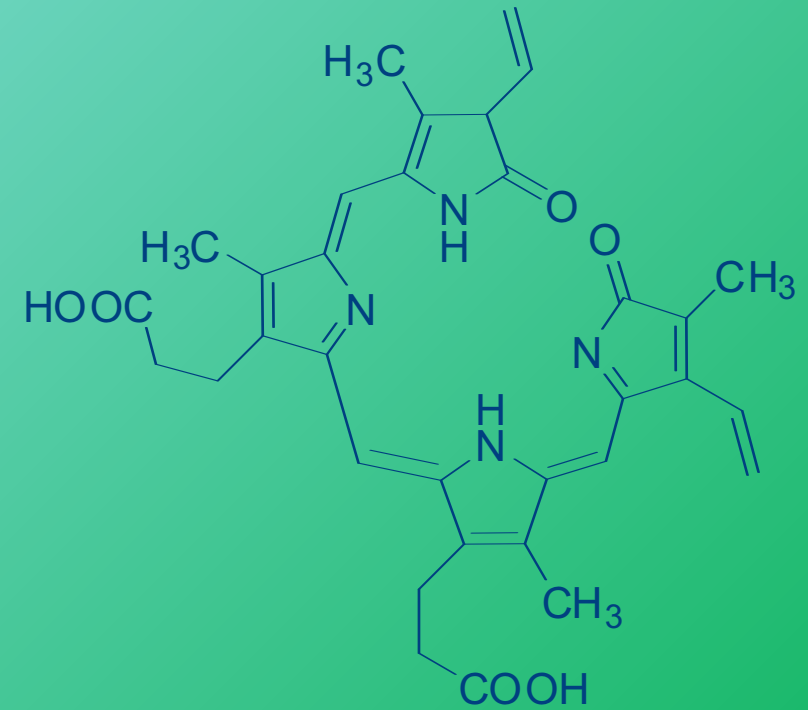


Heme Catabolism



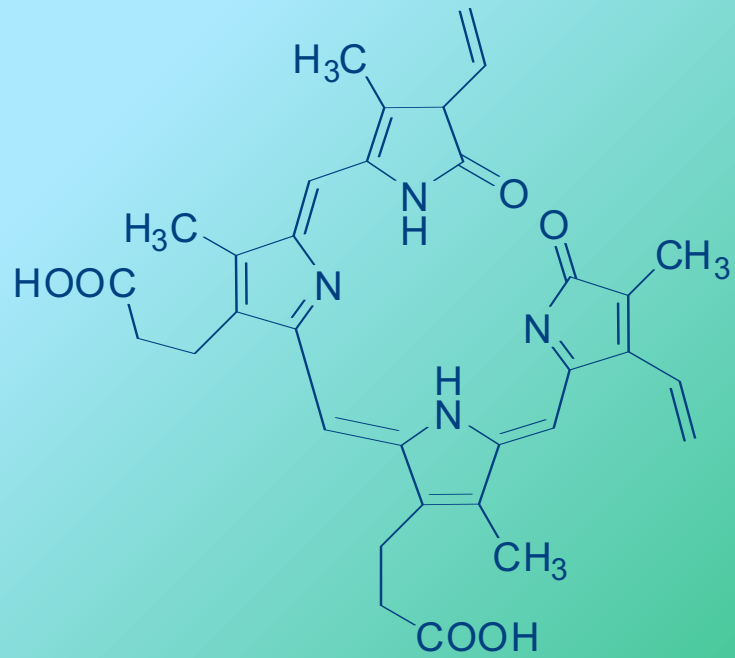
Heme Fe(III)

Heme Oxygenase-1



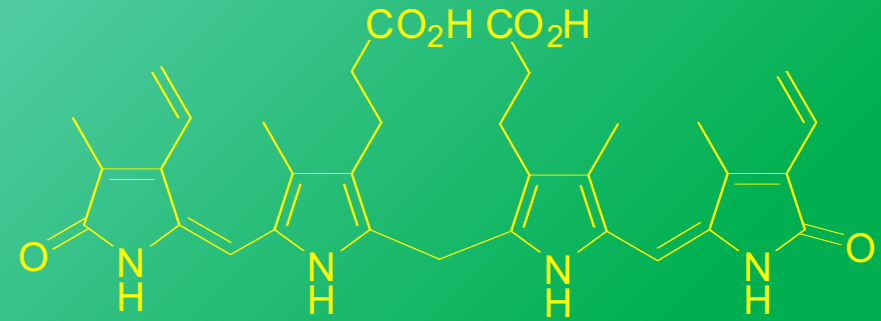
Biliverdin

Heme Catabolism



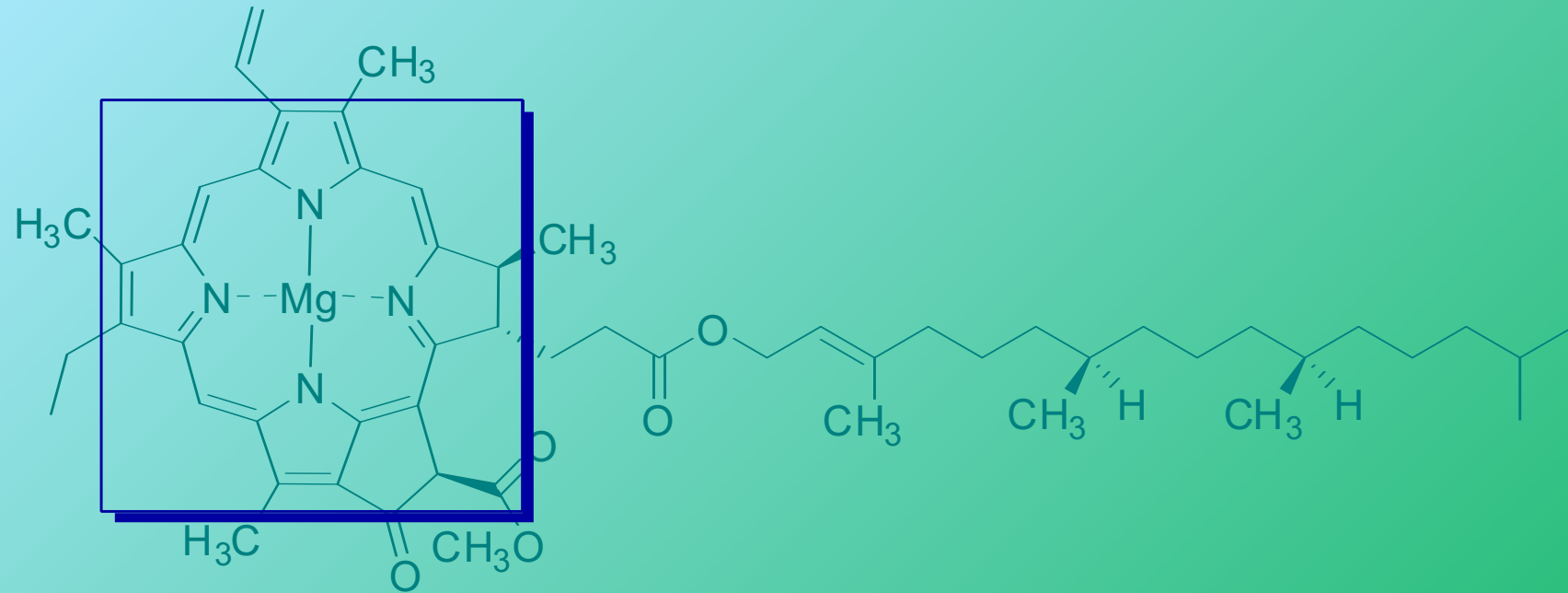
Biliverdin

Biliverdin Reductase



Bilirubin

Other Porphyrinic Compounds?



Chlorophyll A
Green

References