Phototherapy for Bilirubin Treatment

- Elevated levels of bilirubin lead to brain damage.
- Treatment is simple and effective: phototherapy under a blue light.
- How does it work?

Molecular Understanding

\[
\text{4Z, 15Z bilirubin IX}^\alpha \quad \text{naturally occurring}
\]

\[
\text{phototherapy (blue light)}
\]

\[
\text{4E, 15Z bilirubin IX}^\alpha
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\text{4Z, 15E bilirubin IX}^\alpha
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\text{4E, 15E bilirubin IX}^\alpha
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Molecular Understanding

Intramolecular hydrogen bonding increases lipophilicity and prevents metabolism.

Less hydrogen bonding, so more polar and hydrophilic. Can be metabolized!

Phototherapy (blue light)