

Fluorescence resonance energy transfer

Fluorescence resonance energy transfer (FRET) is a fluorescence technique that is used to detect interactions between molecules. FRET occurs when energy passes by a non-radiative process from an excited fluorescent molecule (the donor) to another molecule (the acceptor) leading to a reduction in donor fluorescence. The acceptor may itself be fluorescent, in which case there is an increase in fluorescence at a wavelength characteristic of the emission spectrum of the acceptor. FRET requires that the absorption spectrum of the acceptor overlaps with the emission spectrum of the donor, and that the two molecules are in close proximity. If the donor and acceptor do not interact, or if the interaction is broken, the emission (after appropriate excitation) is at a wavelength characteristic of the emission spectrum of the donor. Thus changes in donor and/or acceptor fluorescence indicate the extent of binding interactions between molecules.