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Fluorescent probes for *in vivo* proteolytic activity

Invention

Dr. Norbert Lange at the University of Geneva has developed novel enzyme-activatable fluorescent polymer conjugates composed of various functional units: polymer carrier, fluorophore, enzyme-specific linker peptide and biocompatibility-enhancing unit.

These macromolecular conjugates are designed to guide to the target tissue a load-cargo of fluorescent agent in an inactive form. Upon entering the target environment, in which certain proteolytic enzymes are locally active, the fluorescence is dequenched and the compound becomes detectable by standard imaging methods.

Applications

In vivo imaging of cells and tissues that express proteolytic enzymes:

- diagnostic applications in humans
- preclinical animal studies

Advantages

- Probes are easy to synthesize with high yields and high purity
- Probes have very low background fluorescence
- For human diagnostics: Detection of enzyme activity *in situ* without need for biopsies or other invasive approaches. Measurements can be repeated at will to assess disease progression/efficacy of treatment.
- For animal studies: Cost is reduced by minimizing animal sacrifice. Individual animal tracking allows easy identification of outliers.

Status

Established method of synthesis

In vivo and *in vitro* proof-of-principle

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