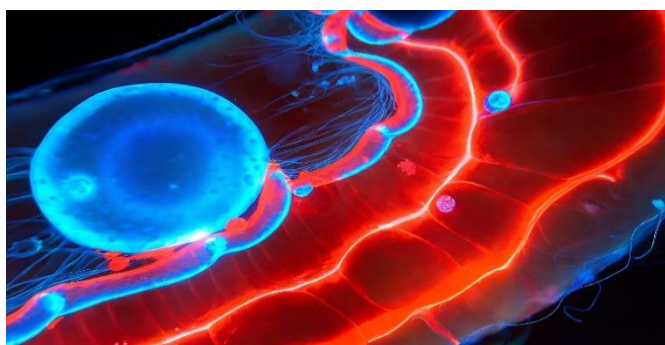


Licensing Opportunity

Simple and photo-stable dyes for long-term live-cell imaging



Summary

We have successfully synthesized a family of simple wavelength specific dye molecules, in both hydrophobic and hydrophilic forms, characterized by excellent cell uptake, intense emission, and remarkable photo-stability.

These compounds demonstrate negligible photobleaching over extended periods of light irradiation, establishing them as excellent candidates for cytosol staining in live cells and long-term intracellular bioimaging (Biotin-, Streptavidin-, and Avidin-conjugates readily available).

Background

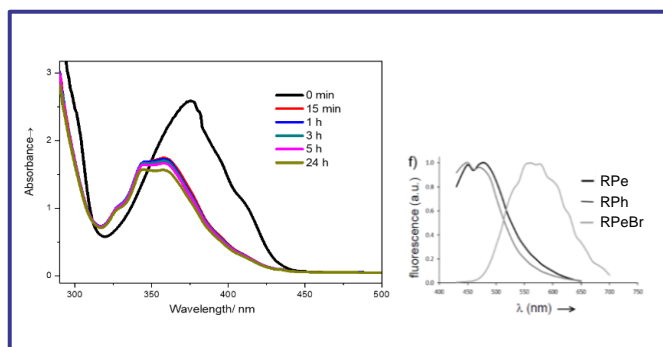
In the landscape of live-cell imaging, the demand for dyes that are both non-toxic and highly stable, especially in the blue spectrum, remains a significant hurdle. Many current fluorophores suffer from rapid bleaching and chemical degradation during laser irradiation, limiting their utility over long recording periods. Additionally, the task of staining different cell components with varied dyes, each absorbing at unique wavelengths, remains a challenge, compounded by the fact that their preparation usually involves laborious and expensive synthesis protocols.

Our groundbreaking technology addresses these issues by introducing non-toxic and highly photostable small dye molecules with simple and cost-effective synthesis processes.

Invention

We demonstrated the exceptional photo-stability of a new family of dyes, primarily attributed to a linker serving as a non-radiative relaxation group. These dyes can undergo intersystem crossing (ISC) upon irradiation, leading to a configurational flip at a faster rate than photobleaching reactions. Non-toxic and wavelength specific, these fluorophores displayed outstanding photostability over extended periods of light irradiation, with no significant photobleaching observed within 24h.

This underscores the potential of this new class of compounds to enrich the pool of highly photostable dyes, enabling concurrent use with dyes of different colors.



Fields of Application

- Long-term live cell bioimaging (LSCM & STED)
- Histological staining and antibody labelling

Patent Status

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