FLUORESCENT DENDRONS: A NEW TOOL FOR SINGLE PROTEIN VISUALIZATION

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Despite the realization of a great number of fluorescent labels developed in the last years and the recent advances of tagging techniques, we are still far from a "perfect" label for *in vivo* single protein visualization. The best labels actually commercially available are maybe Quantum Dots[1] (QDs), that show however a serious drawback: the variable stoichiometry in protein bonding. Despite the excellent optical properties shown by QDs, this drawback constitutes a severe obstacle in QDs application for single protein visualization.

Dendrimers[2] are a really promising and versatile class of compounds, widely used for many applications. In our search for an effective label for single protein visualization, the use of a dendritic framework has been a natural choice, exploiting the possibility of binding a high number of fluorophores on the dendrimer surface.

We present here the preliminary studies on several fluorescent nanocomponents based on a thiol terminated PAMAM dendron[3] (Fig. 1). These new fluorophores are developed in order to combine a high signal intensity with a single site eligible for protein conjugation (i.e. with a known and exact stoichiometry). By exploiting the properties of the transition metals based luminophores, we were able to obtain a new label with a very high fluorescence intensity, that enables the detection of the fluorescence even in highly diluted solution.

References:

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Figures: .

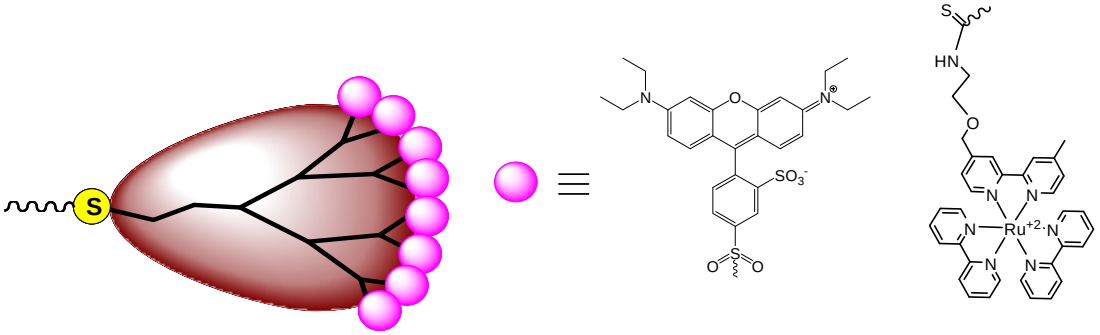

FIGURE 1. Fluorescent label based on a thiol terminated PAMAM dendron decorated with Lissamine or Ru(II)-based dyes.