FLUORESCENT LABELING OF CANCER CELLS WITH CHEMICALLY MODIFIED BACTERIA

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Abstract –

Our group has developed a method for decorating bacteria with artificial, self-assembled receptors based on oligonucleotide-small molecule conjugates. We have shown that with this approach, bacteria can be 'programmed' to glow, adhere to surfaces, or interact with specific proteins or mammalian cells.1 In this talk, I will describe several innovations that were introduced to this technology, which enabled us to create fluorescent bacterial probes (B-probes) that can selectively bind and label different cell surface proteins (CSPs), as well as methods for creating B-probes that emit at different colors with enhanced brightness. We showed that with these advances three types of cancer cells could be straightforwardly identified, even when the B-probes are combined in a single solution.

Keywords - Fluorescent Probes, Cell Surface Engineering, Multivalency, Biomimetics