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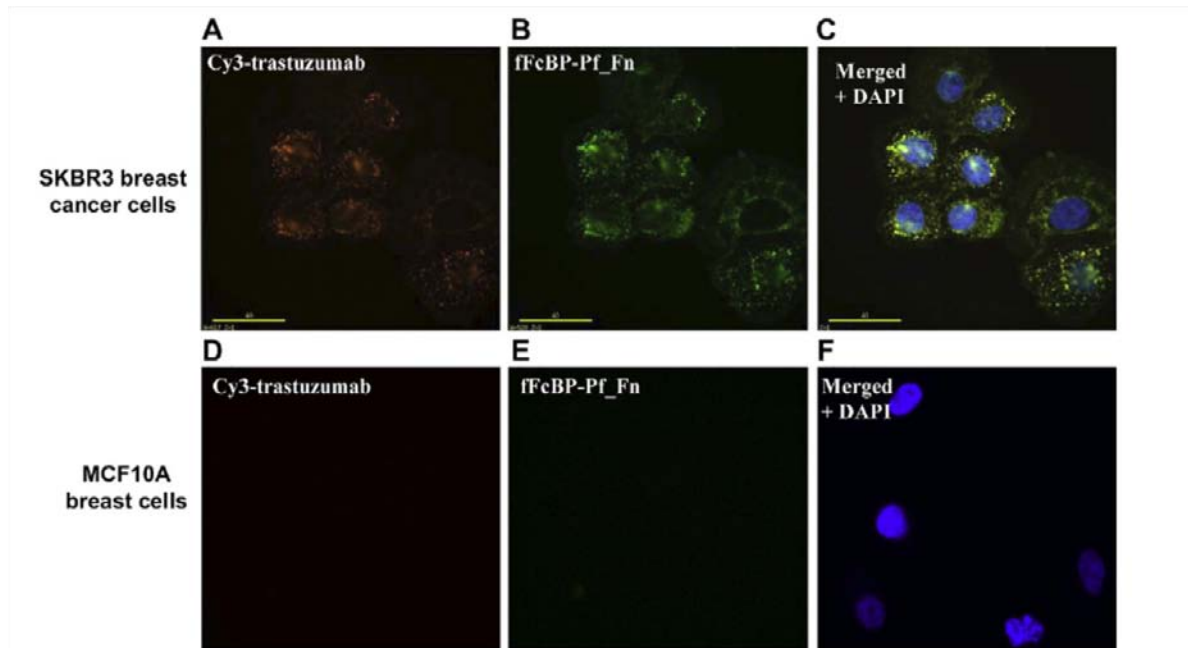
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## **Biochemical Application of IgG Fc–Binding Peptide: From Biochip to Targeted Nano Carrier**

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FcBP consisting of 13 amino acids specifically binds to Immunoglobulin G Fc domain. Initially, we utilized this peptide for preparation of antibody chip as a PEG composite for enhanced solubility. After then, the peptide conjugate was immobilized on agarose resin, resulting in highly efficient affinity column for antibody purification. The efficiency was comparable to commercial Protein A column. Recently, this peptide was conjugated with cell penetrating peptide (CPP) on a backbone of GFP, affording antibody transducer, which carries antibody into live cells by simple mixing of antibody and the transducer in cell culture media. Antibody transduction into cells was monitored by live cell imaging. More recently, the FcBP was fused to ferritin cage, which consists of 24 ferritin protein molecules. The FcBP-ferritin cage showed greatly increased binding affinity to human IgG. Its binding was analyzed by QCM and SPR analysis. Finally, it was selectively delivered by Herceptin to SKBR3, a breast cancer cell, over MCF10A, non-tumorigenic cells (Fig. 1).



**Fig. 1.** Fluorescent microscopic images of SKBR3 breast cancer cells (A~C) and MCF10A breast cells (D~F) treated with Cy3-trastuzumab/fFcBP-Pf\_Fn complexes. Trastuzumab and FcBP-Pf\_Fn, which were labeled with Cy3 (Cy3-trastuzumab) and fluorescein (fFcBP-Pf\_Fn), respectively, selectively targeted SKBR3 over MCF10A.