

Marcel Bruchez, Associate Professor

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The recent work of Professor Bruchez has focused on development of highly sensitive fluorescence labeling methods that can be used without any washing, to directly report on cellular activity or physiology in intact cells, tissues or organisms. His group has used a combination of genetically encoded tags and environmentally sensitive dyes to establish a broadly applicable toolset for imaging multicellular processes and local physiology in complex multicellular systems. These tools have revealed fundamental trafficking processes and new modes of intercellular antigen transfer, enabling new approaches to vaccine and therapeutic development. The video linked shows a pH sensor that revealed a novel surface-to-endosome mechanism of intercellular antigen transfer between dendritic cells. Professor Bruchez, a Technology Review “Top 100 Young Innovators” honoree, holds 23 patents.

