Literature Report

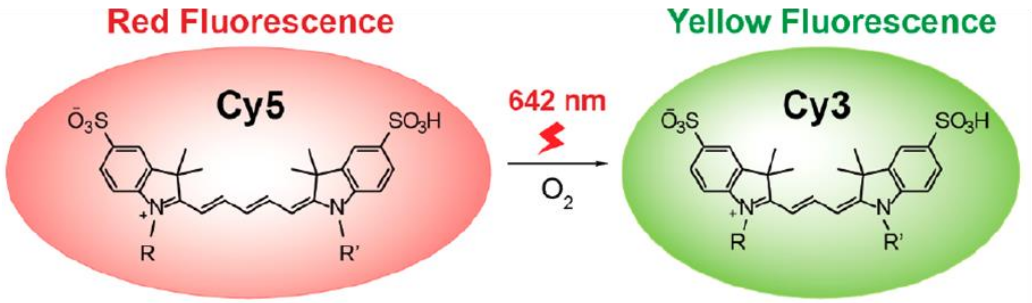
JACS
JOURNAL OF THE AMERICAN CHEMICAL SOCIETY

pubs.acs.org/JACS

Article

Mechanism of Cyanine5 to Cyanine3 Photoconversion and Its Application for High-Density Single-Particle Tracking in a Living Cell

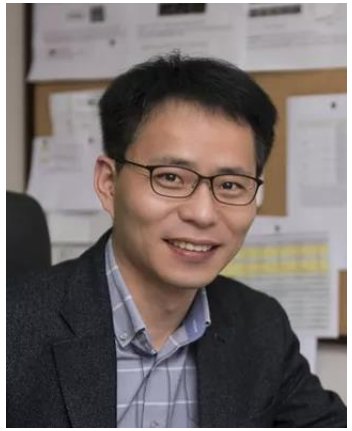
Yoonjung Cho,[§] Hyeong Jeon An,[§] Taehoon Kim, Chulbom Lee,* and Nam Ki Lee*



Reporter: Kai An

Date: 2021-09-09

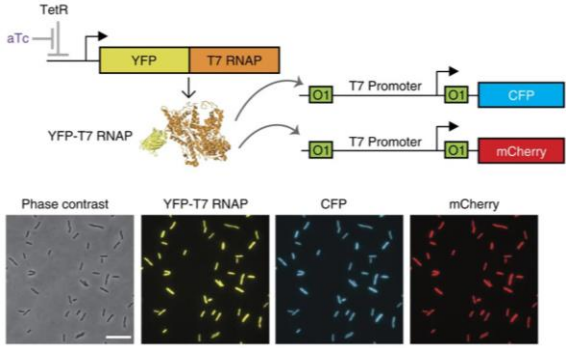
About the Author

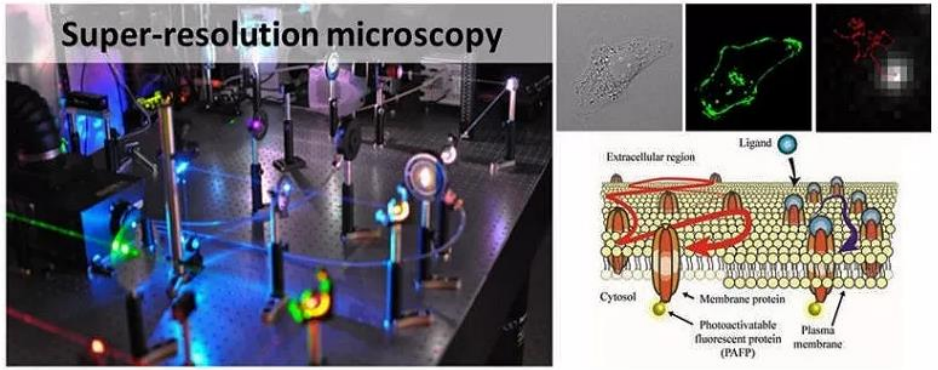


Nam Ki Lee

2017 - present Associate Professor, Department of Chemistry, **Seoul National University**
2013 - 2017 Associate Professor, Department of Physics & School of Interdisciplinary Bioscience and Bioengineering
2009 - 2013 Assistant Professor, School of Interdisciplinary Bioscience and Bioengineering & Department of Physics

Single Protein Dynamics in Living Cells





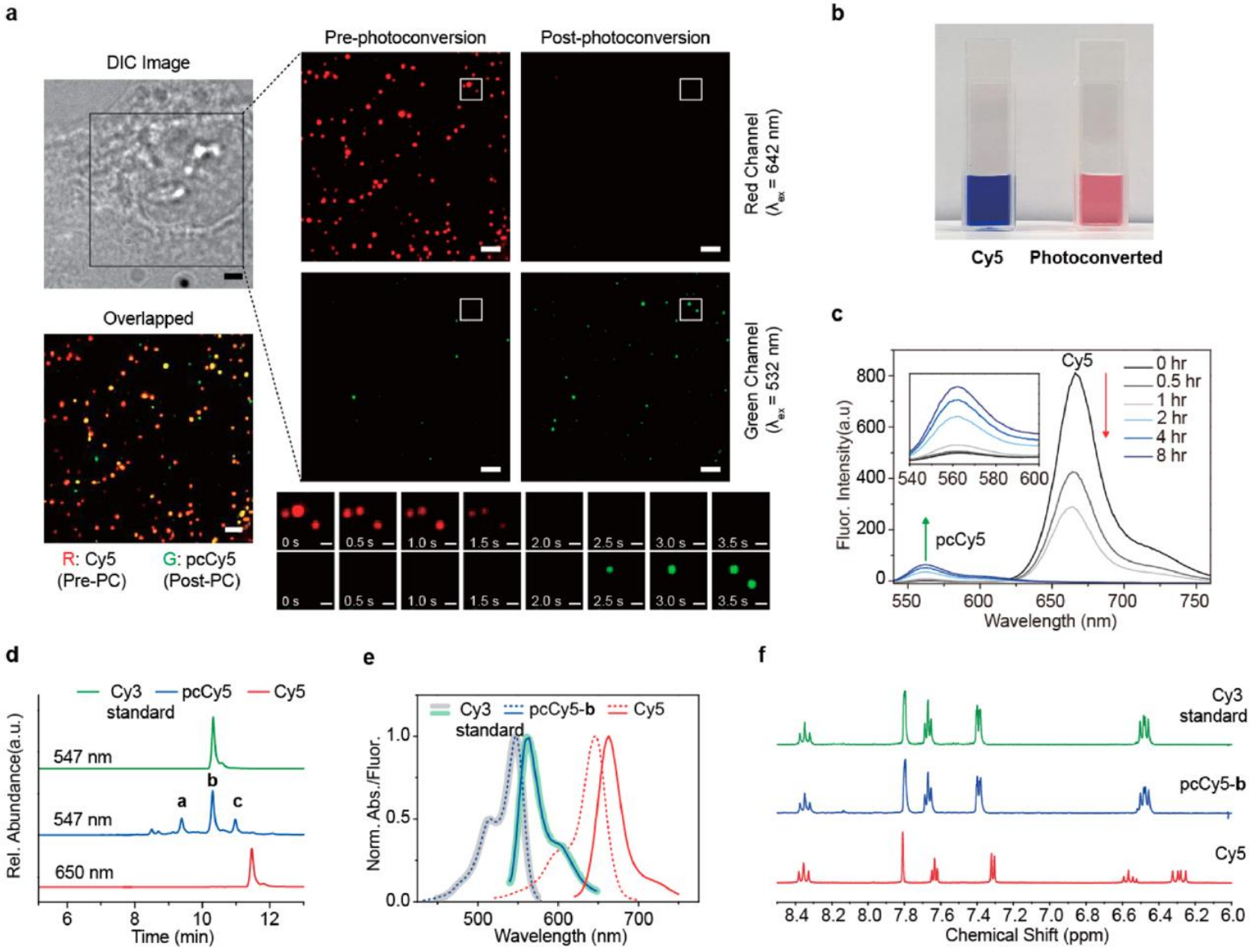
Chulbom Lee

2008 - Present Associate Professor, Department of Chemistry, **Seoul National University**
2001 - 2008 Assistant Professor, Department of Chemistry, Princeton University
1999 - 2001 Postdoctoral Fellow, Memorial Sloan-Kettering Cancer Center

New Reaction Development

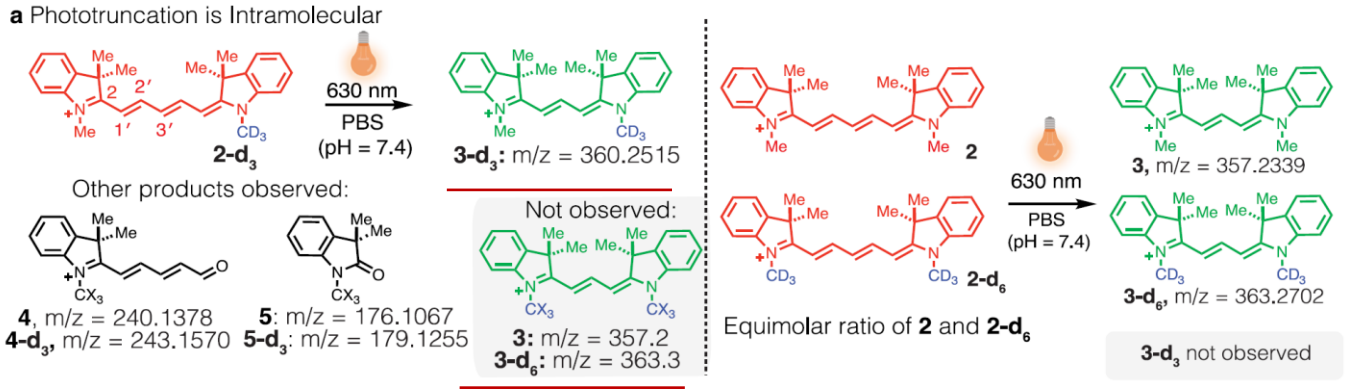
Synthesis of Natural Products

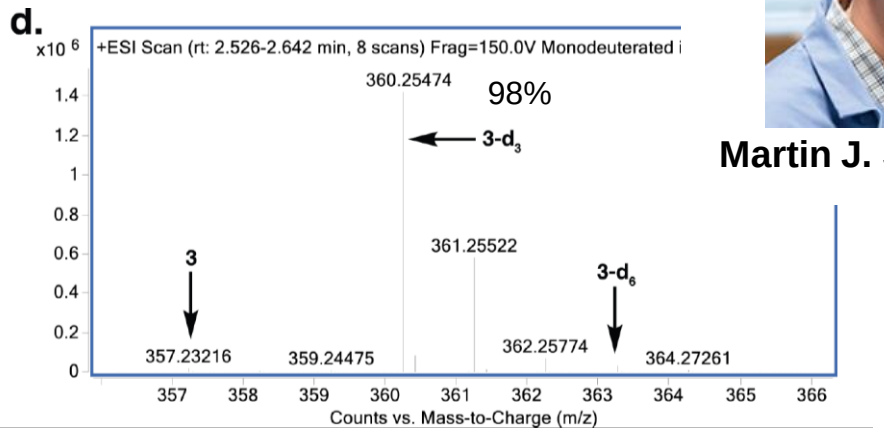
Photoconversion of Cyanine Dyes

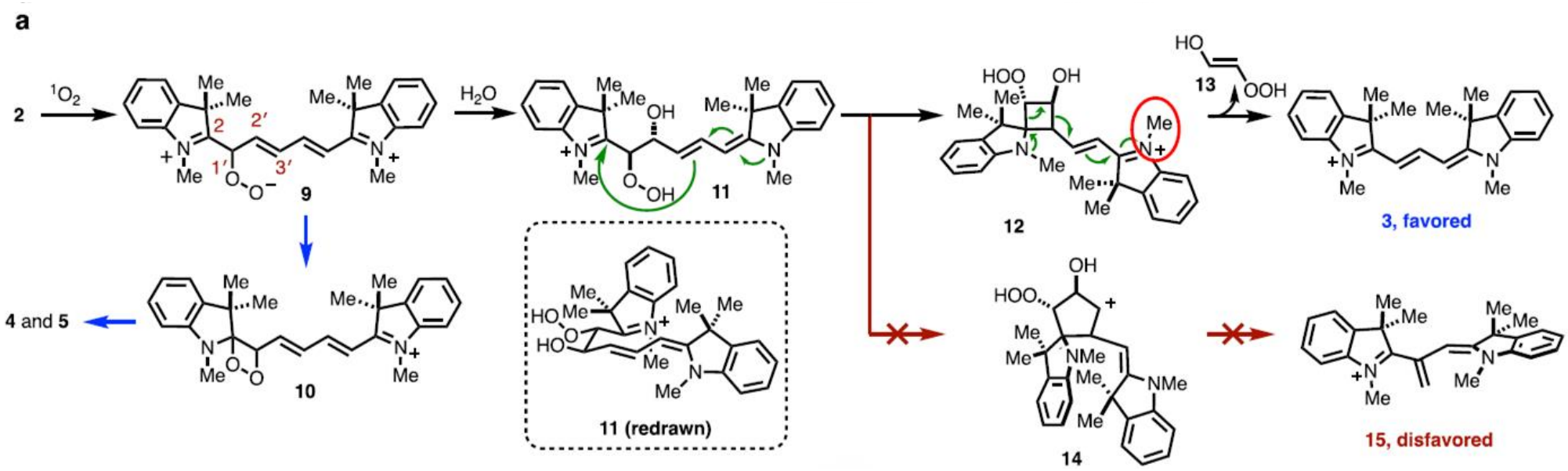


Mechanism of Intramolecular Photoconversion of Cyanine Dyes

Martin J. Schnermann

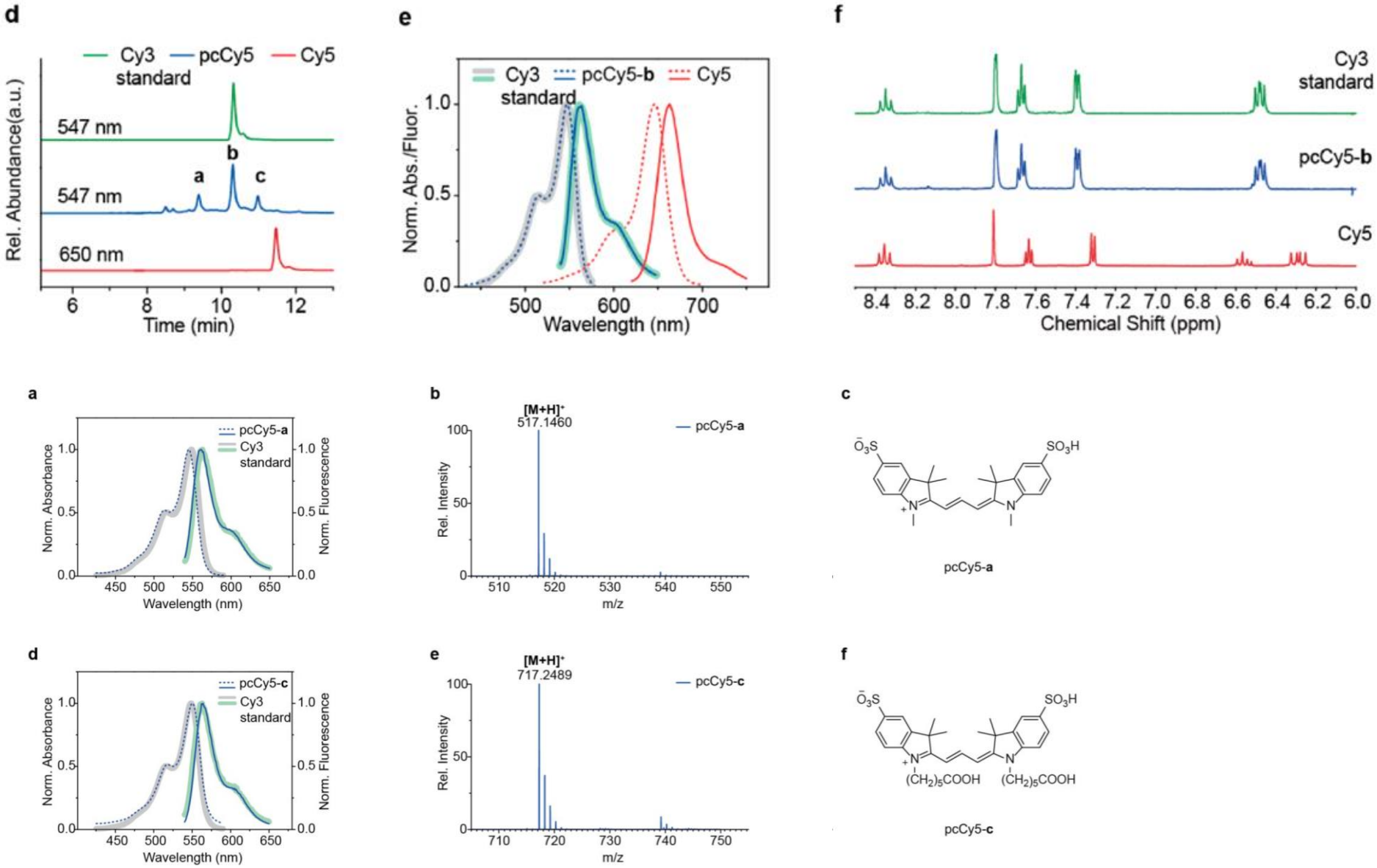




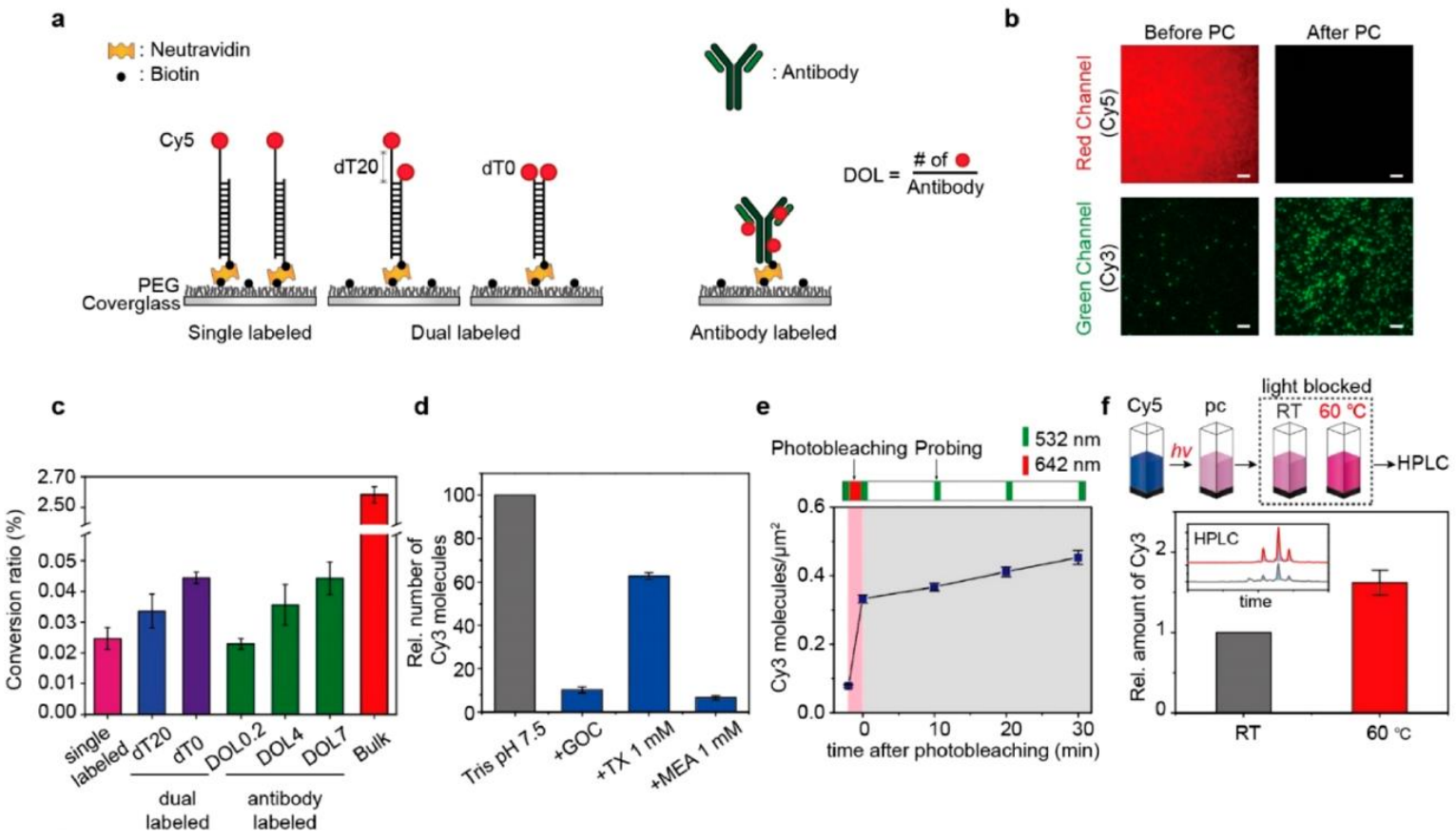


ACS Cent. Sci. **2021**, 7, 1144−1155

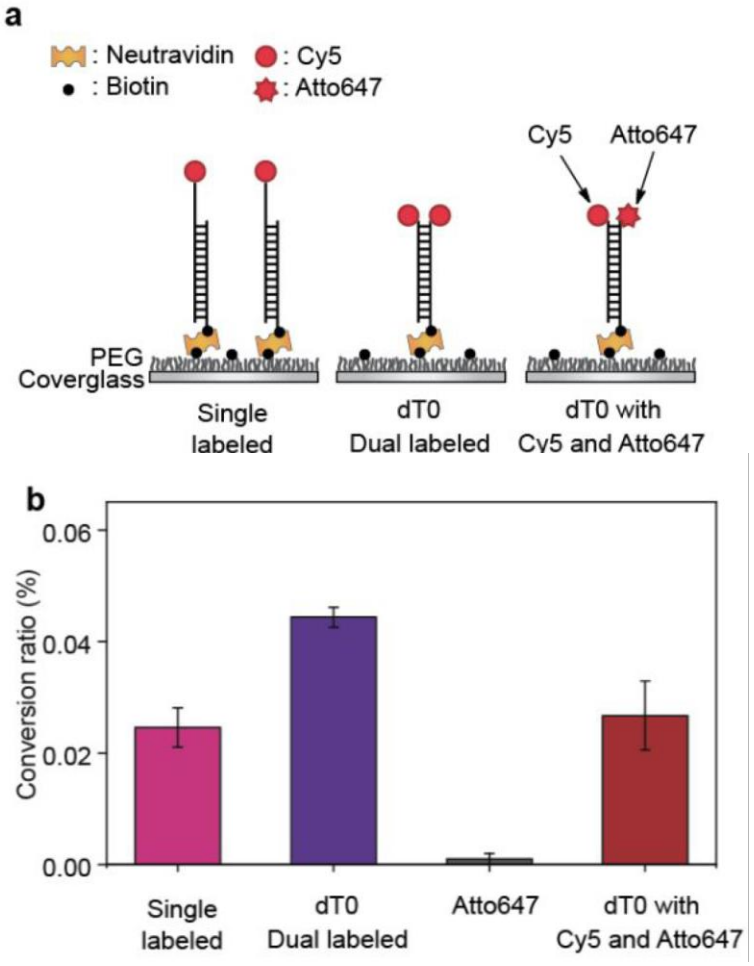
Photoconversion of Cy5 to Cy3



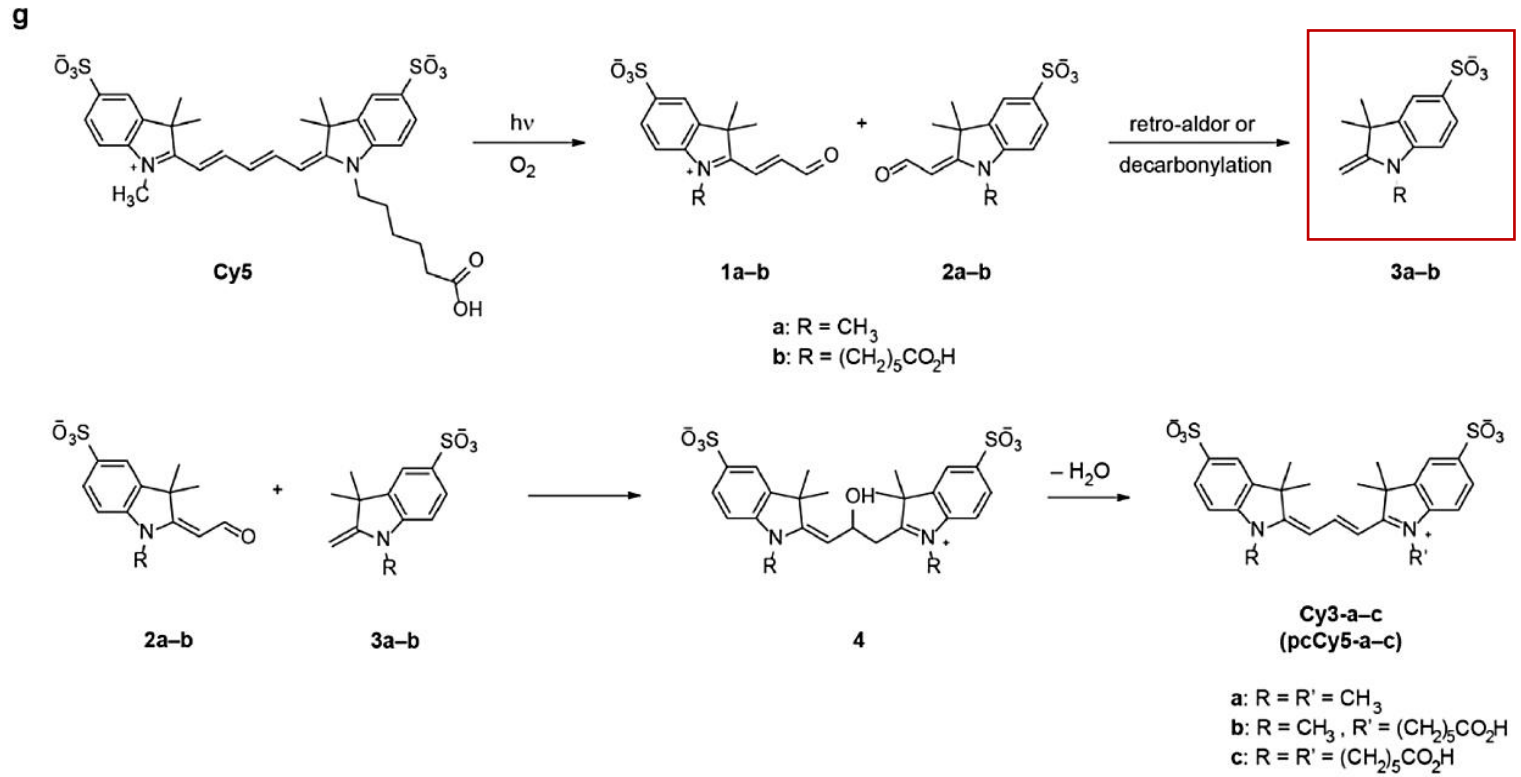
Factors Affecting Cy5 Photoconversion



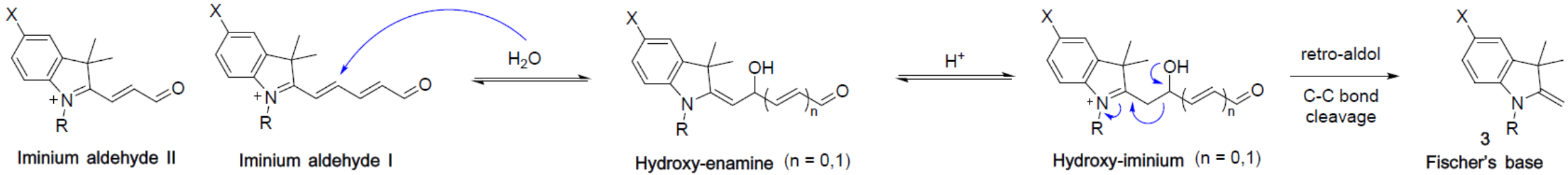
approximately 0.3−1.2 molecules/μm^2



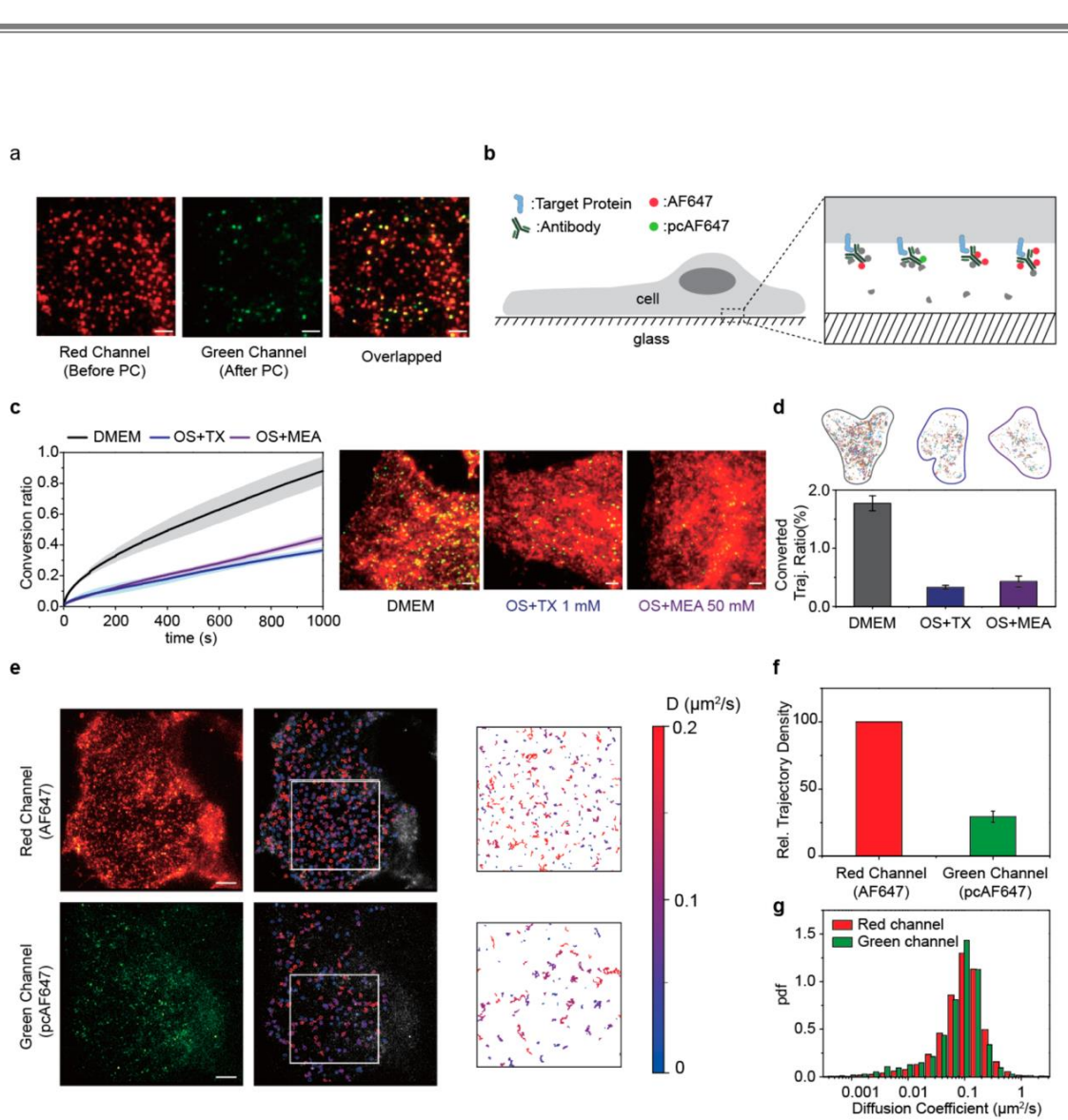
Reaction Mechanism for the Cy5 to Cy3 Photoconversion

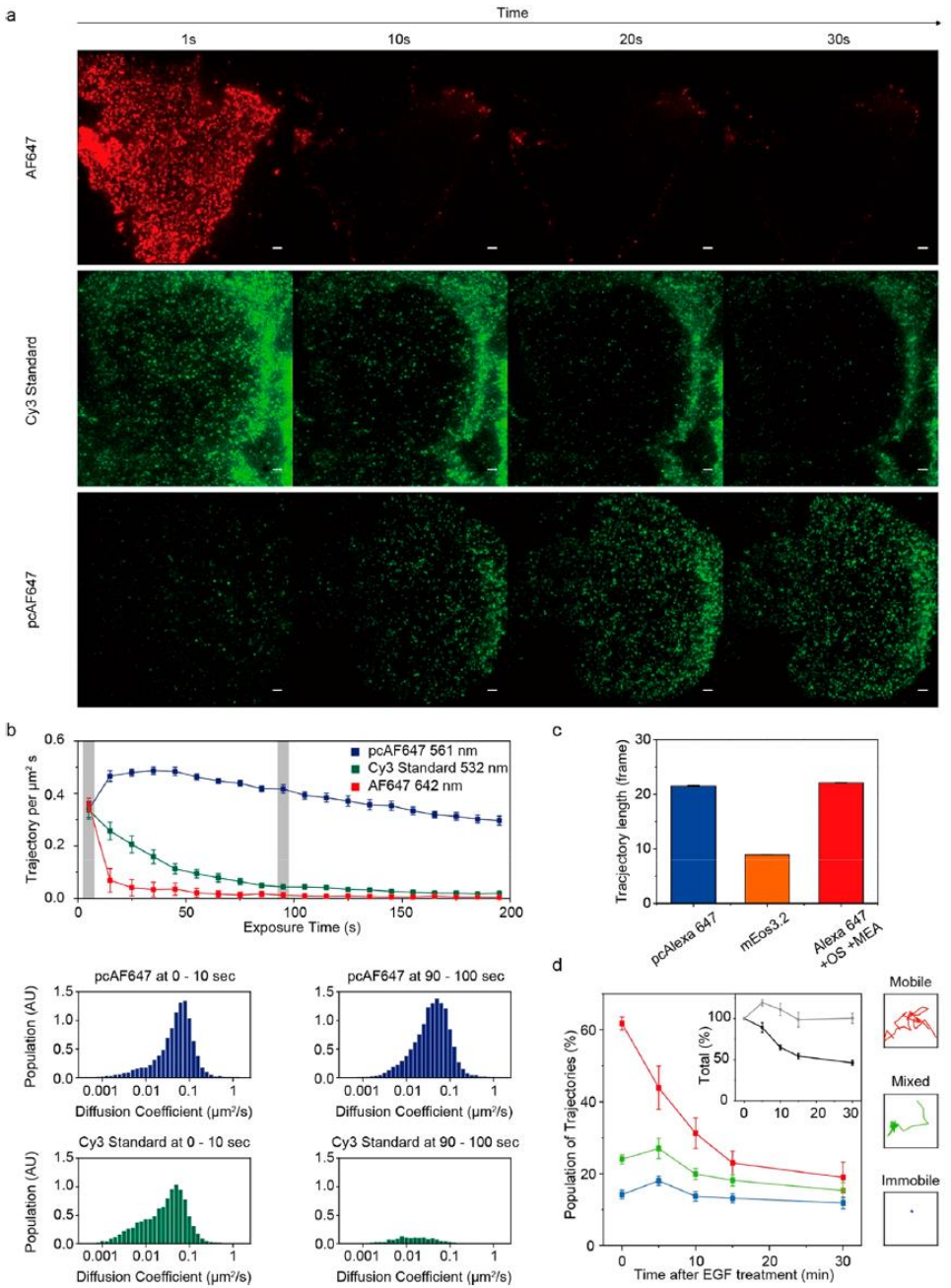


2) Excision



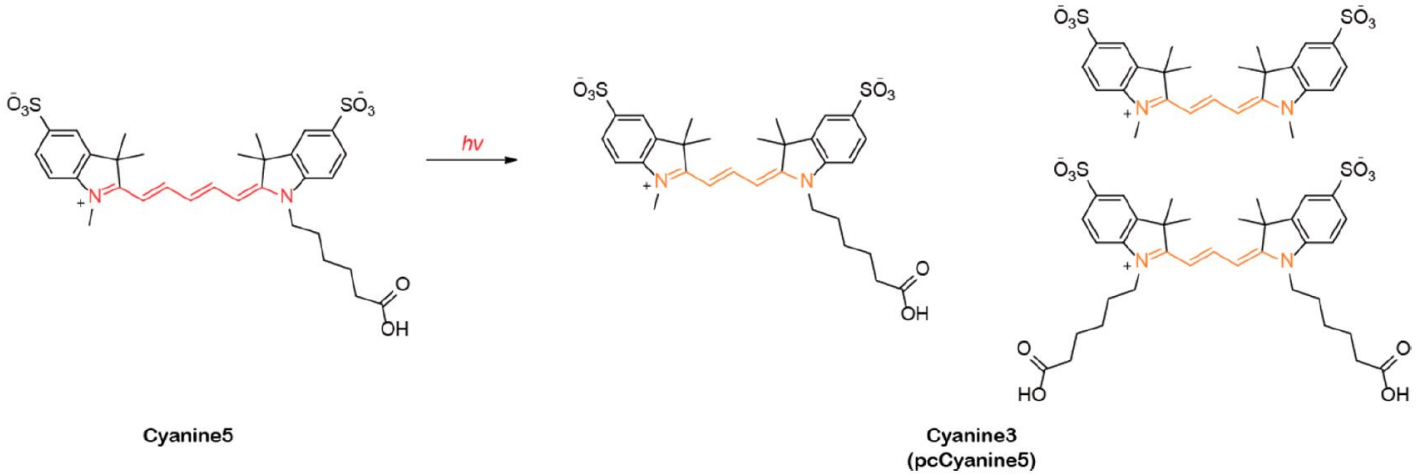
Photoconversion of AF647 in immunostained cells





Summary

- The Cy5 to Cy3 conversion may occur through an intramolecular splicing or intermolecular reconstitution process.



- Photoconversion can offer an opportunity for the development of a new strategy of photoactivation offluorophores for single-particle tracking.