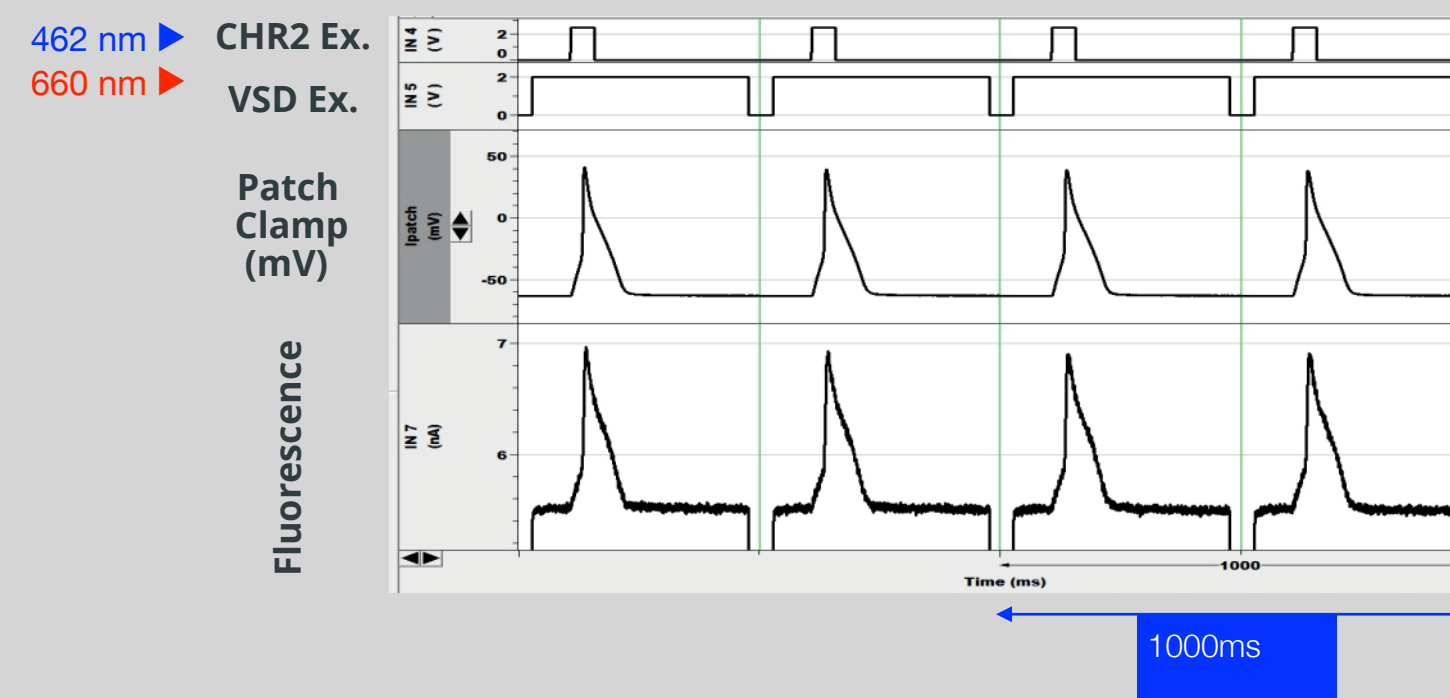
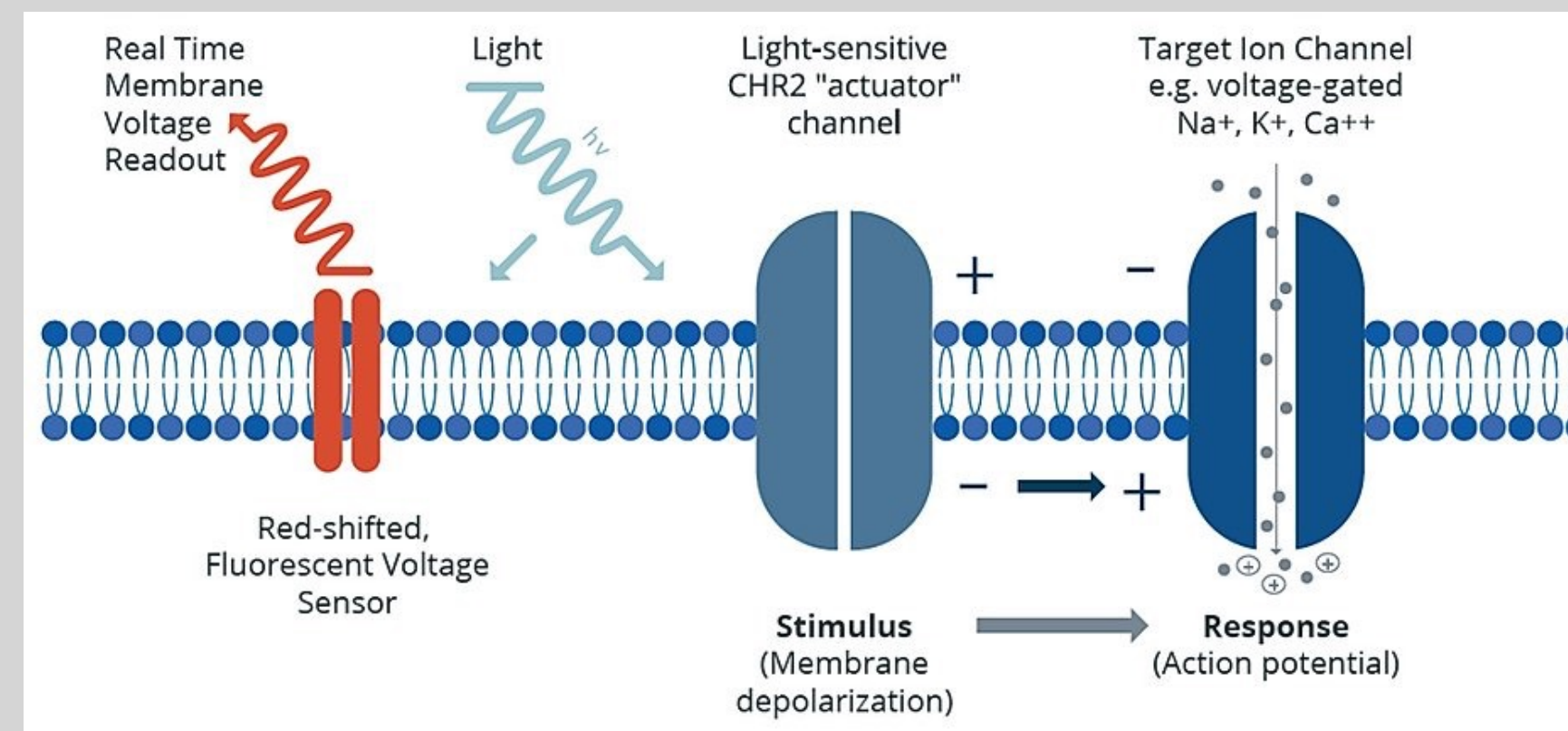
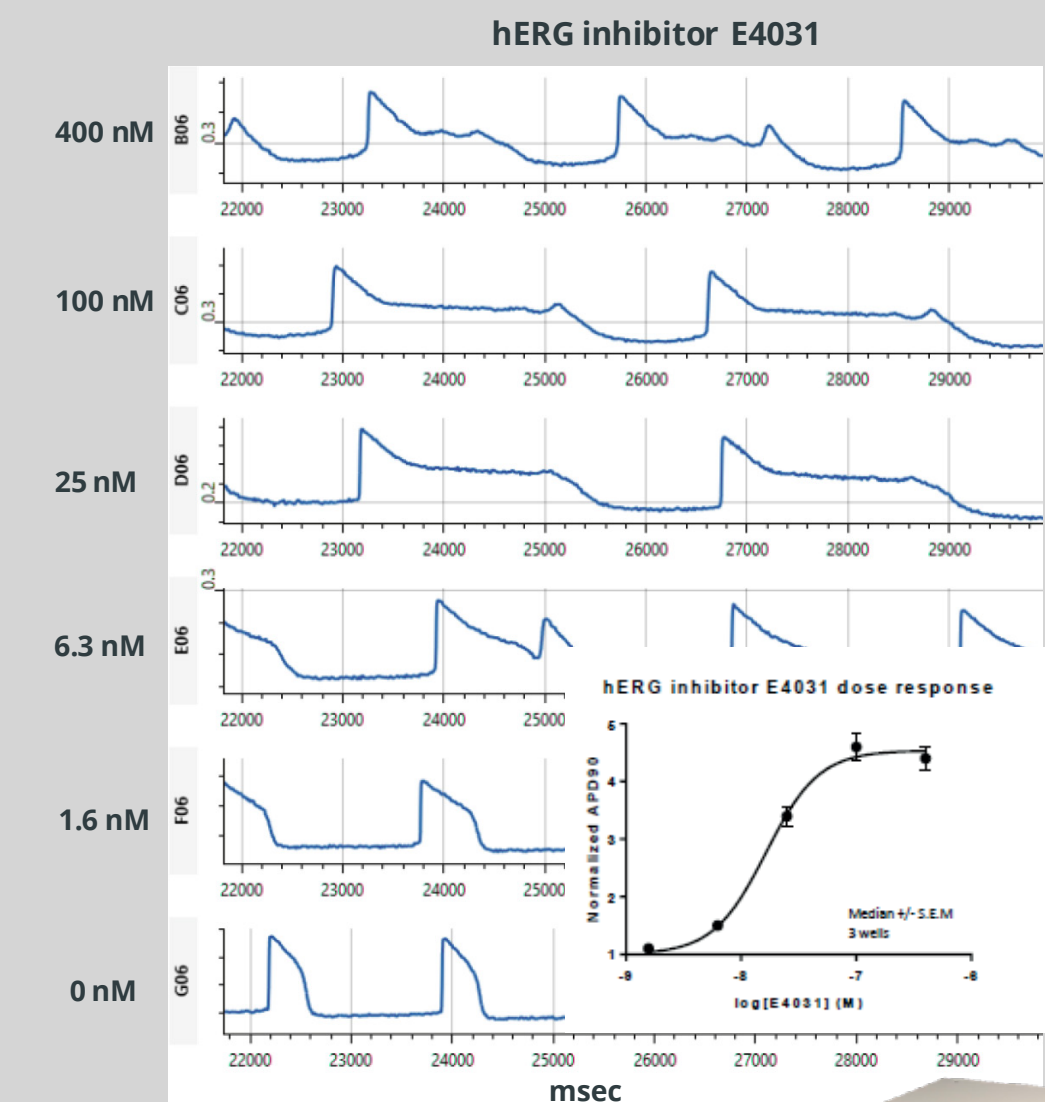


VOLTA plate readers: Novel assay formats reinvented: Electrophysiology >> Photometric

- Fast biology: electrochemical action potentials transmit nerve impulses for ~1 msec.
- Lumencor's VOLTA plate reader has the capacity to monitor simultaneous cellular functions with sub-millisecond temporal resolution across 96 and higher multiple microplate wells.
- Kinetic assays of cellular activity generally use cells in which the receptor or ion-channel responsible for mediating the activity of interest are transgenically expressed. Activity is initiated by fluidic addition of a small molecule agonist, and the activity elicited is detected by an intracellular fluorescent probe.
- VOLTA is an ideal scanner for pharmacological safety profiling, illustrated in the schematic with kinetic data.
- A 50-ms pulse of 462 nm light is absorbed by channelrhodopsin (ChR2), initiating a transient change in transmembrane voltage, detected by monitoring of voltage-sensitive dye fluorescence with 0.1 ms resolution.
- Drug-binding to the target ion channel are manifested as changes in fluorescence-detected transmembrane voltage patterns as $f(\text{drug concentration})/\text{well}$.



Electrophysiology assay reinvented with
Optical Transduction assay in Scanner



"VOLTA" Microtitre Plate Reader
Streamlines design, development and cost