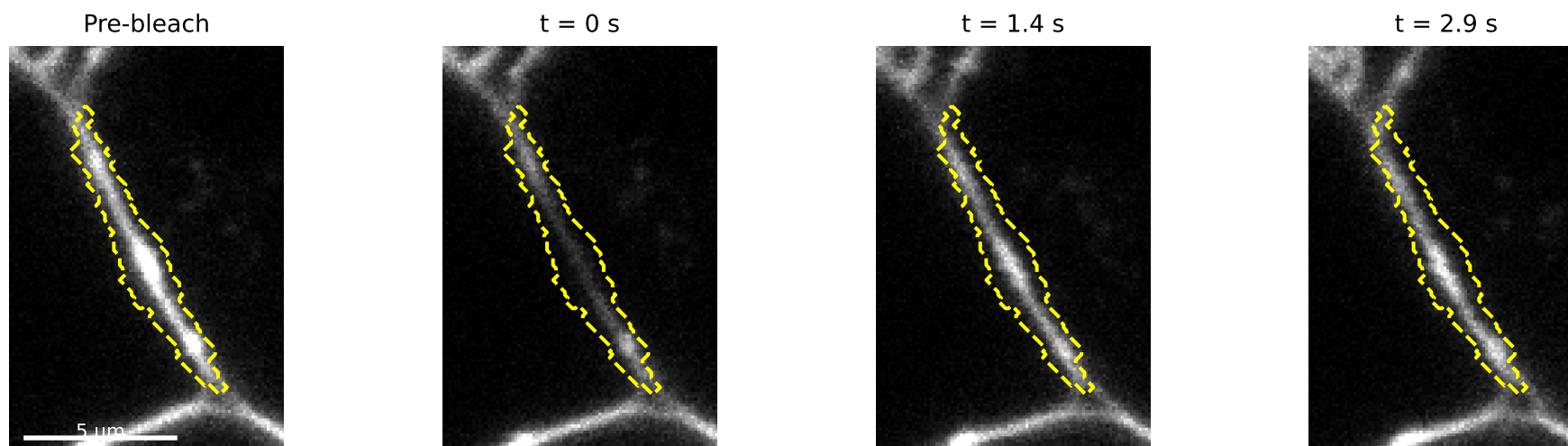
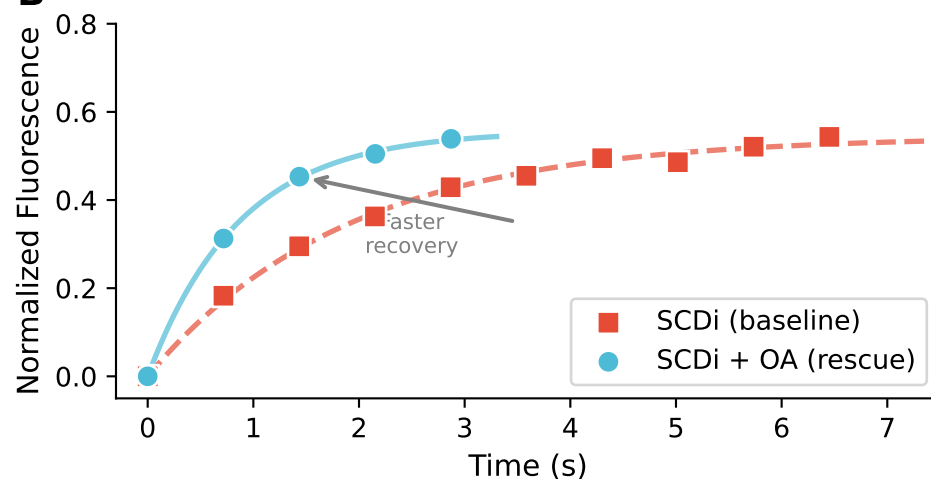


## SCDi + 100 $\mu$ M OA (Rescue)

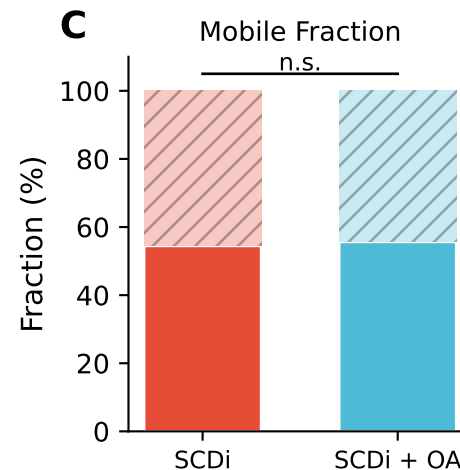
**A**



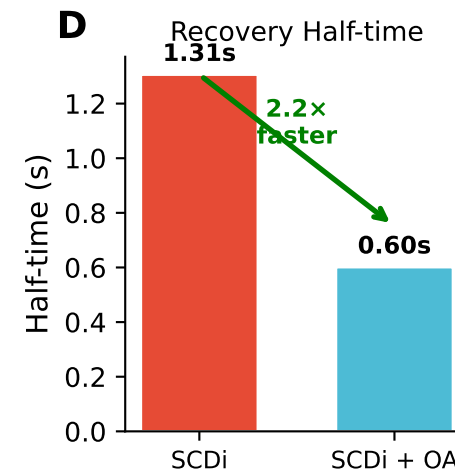
**B**



**C**



**D**



**E**

### Summary: OA Rescue of SCDi Phenotype

Parameter	SCDi (Baseline)	SCDi + OA (Rescue)	Effect
Mobile Fraction (%)	54.5	55.6	No change
Half-time $t_{1/2}$ (s)	1.306	0.601	2.2x faster
Time Constant $\tau$ (s)	1.884	0.867	Rescued
R <sup>2</sup>	0.9962	0.9998	-

**F**

#### Biological Interpretation:

SCDi inhibits Stearoyl-CoA Desaturase (SCD), blocking endogenous oleic acid synthesis.

#### Baseline (SCDi alone):

- Depleted oleic acid
- Slower molecular dynamics ( $t_{1/2} = 1.31s$ )

#### Rescue (SCDi + exogenous OA):

- Oleic acid restored exogenously
- Faster dynamics rescued ( $t_{1/2} = 0.60s$ )

#### Conclusion:

The slower dynamics in SCDi-treated cells are specifically due to oleic acid depletion, as adding exogenous OA reverses the phenotype.