	J_{-60mV} (pA/pF)	τ_{off} (-60 mV) RT
Chronos (a)	24.01 ± 7.46 (n = 14) # b***, c**, d(ns), e(ns), f(ns), g(ns), h(ns), i(ns)	3.72 ± 0.67 (n = 10) § b(ns), c(ns), d(ns), e(ns), f*, g(ns), h****, i****
f-Chronos (b)	4.66 ± 2.98 (n = 13) # a***, c(ns), d(ns), e(ns), f(ns), g****, h****, i***	1.72 ± 0.12 ms (n = 4) § a(ns), c(ns), d(ns), e(ns), f*, g(ns), h****, i****
f-Chronos LC (c)	4.55 ± 3.09 (n = 9) # a**, b (ns), d(ns), e(ns), f(ns), g****, h****, i***	3.56 ± 0.94 ms (n = 8) § a(ns), b(ns), d(ns), e(ns), f*, g(ns), h****, i****
Chronos LC (d)	17 ± 6.85 (n = 11) # a(ns), b(ns), (ns), e(ns), f(ns), g(ns), h(ns), i(ns)	8.22 ± 1.73 ms (n = 11) § a(ns), b(ns), c(ns), e(ns), f(ns), g(ns), h**, i*
ChR2 (e)	19.33 ± 7.57 (n = 11) # a(ns), b(ns), c(ns), d(ns), f(ns), g(ns), h(ns), i (ns)	10.54 ± 2.34 ms (n = 9) § a(ns), b(ns), c(ns), d(ns), f(ns), g(ns), h(ns), i(ns)
ChR2 ET/TC (f)	14.15 ± 5.37 (n = 11) # a(ns), b(ns), c(ns), d(ns), e (ns), g(ns), h**, i(ns)	10.99 ± 2.23 ms (n = 11) § a*, b*, c*, d(ns), e(ns), g(ns), h(ns), i(ns)
f-ChR2 TC (g)	28.42 ± 10.36 (n = 16) # a (ns), b****, c****, d(ns), e(ns), f(ns), h(ns), i(ns)	9.73 ± 1 ms (n = 9) § a(ns), b(ns), c(ns), d(ns), e(ns), f(ns), h(ns), i(ns)
CatCh (h)	37.05 ± 12.46 (n = 11) # a(ns), b****, c****, d(ns), e(ns), f**, g(ns), i(ns)	33.09 ± 5.72 ms (n = 9) § a****, b****, c****, d**, e(ns), f(ns), g(ns), i (ns)
ChR2 TC (i)	31.39 ± 17.53 (n = 10) # a(ns), b***, c***, d(ns), e(ns), f(ns), g(ns), h(ns)	28.22 ± 6.52 ms (n = 10) # a****, b****, c****, d*, e(ns), f(ns), g(ns), h(ns)

Legend:

Table EV1. Stationary current densities [J_{-60mV} (pA/pF)] and closing kinetics (τ_{off} values) of blue light activated ChRs. Stationary current densities were obtained from the quotient of the mean stationary photocurrent upon 500 ms light stimulation (saturating intensity of ~ 30 mW/mm^2, λ = 473 nm) and the capacitance of the cell. # Significantly different current densities compared to a) Chronos, b) f-Chronos, c) f-Chronos LC, d) Chronos LC, e) ChR2, f) ChR2 ET/TC, g) f-ChR2 TC, h) CatCh, and i) ChR2 TC. Closing kinetics were determined at RT by a monoexponential fit of the decaying photocurrent after 3 ms light pulse (saturating intensity of ~ 30 mW/mm^2, λ= 473 nm). f-Chronos closing kinetics at RT were obtained from photocurrents elicited by 7 ns light pulse (λ = 500 nm, 1020 $photons/m^2$) to avoid interference in the off-kinetics due to shutter opening/closing time (~ 700 µs) using the Opolette 355 tunable laser system (Opotek Inc, Carlsbad, USA). § Significantly different closing kinetics compared to a) Chronos, b) f-Chronos, c) f-Chronos LC, d) Chronos LC, e) ChR2, f) ChR2 ET/TC, g) f-ChR2 TC, h) CatCh, and i) ChR2 TC. Kruskal-Wallis followed by Dunn's test: $p > 0.05$ (ns); * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; **** $p < 0.0001$. All measurements were performed in NG108-15 cells transiently transfected with the specified ChR variants by whole-cell patch clamp at membrane potential of -60 mV. Data are