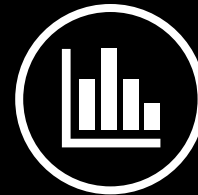
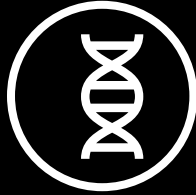


Celltheon CT STABILIZER™ Element

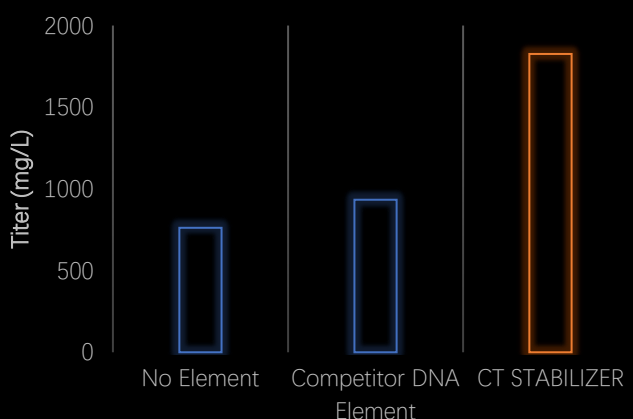
ADVANCING GENETIC OPTIMIZATION



The Celltheon's CT STABILIZER™ is a novel and proprietary genetic element that has chromatin binding and organization properties that confer enhanced expression and genetic stability in recombinant cell lines. Using other industry genetic technologies, stable pool titers only reach 0.2-0.5 g/L at best. Using the Celltheon SMART™ DNA Element, Celltheon's stable pools are high expressing at 1-2 g/L without the need for process optimization. Following clone selection, the titers are even higher with clones expressing >5-8 g/L without process optimization.

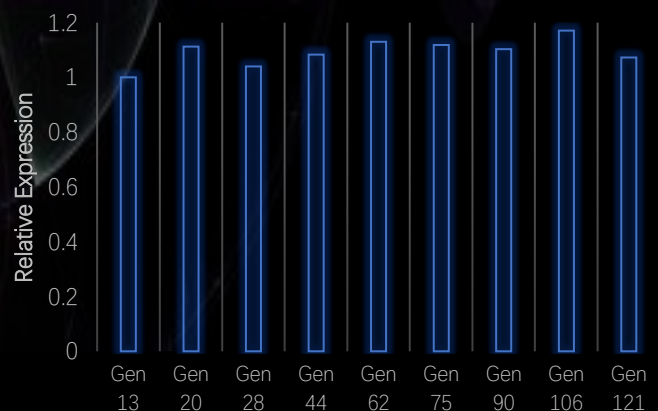
Using this genetic element in numerous manufacturing cell lines, Celltheon has demonstrated cell line stability for >60 generations from stable pools and >120 generations (3-4 months) from stable clones with <3% RSD. The high stability conferred by this element is attributed to optimization of the element's structure and size. The Celltheon SMART™ DNA element is only 1.8kB compared to 3-5kB of comparable genetic elements in industry. The smaller size improves cloning efficiency and reduces the possibility of genetic silencing.

Effect of CT STABILIZER in Stable Pools



2-fold improvement in expression over competitors

Celltheon DNA Element: >120 generation Stability



121 generational stability tested with <3% RSD