Abstract

CHROMOSOMAL LANDING PADS AND RELATED USES

Provided herein are methods for stable integration and/or expression of one or more recombinant polynucleotides in a host cell. The recombinant polynucleotides are typically integrated into the host genome at some native chromosomal integration sites. The integration can be mediated by homologous recombination or by using a hybrid recombinase targeting the specific chromosomal locations. The native chromosomal integration sites in the host cells, which support stable integration and strong transcription activities of foreign genes, are present within or adjacent to specific genes in the CHO genome, ankyrin 2 gene (Ank2), cleavage and polyadenylation specific factor 4 gene (Cpsf4), C-Mos gene, and Nephrocystin-l/Mal gene. Also provided are methods and nucleic acid molecules for inserting site-specific recombination sequences (chromosomal landing pads) into these specific chromosomal locations. Further provided are engineered host cells which contain chromosomal landing pads or transgenes integrated into the native chromosomal integration sites. Further provided are methods and compositions (e.g., kits) for integrating and expressing heterologous polynucleotides in host cells bearing inserted chromosomal landing pads.

[Figure 3]