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PII: S0168-1702(17)30484-7
DOI: http://dx.doi.org/10.1016/j.virusres.2017.09.007
Reference: VIRUS 97235

To appear in: *Virus Research*

Received date: 15-6-2017
Revised date: 11-9-2017
Accepted date: 11-9-2017

Please cite this article as: Close, William L., Bhandari, Amit, Hojeij, Marwa, Pellett, Philip E., Generation of a novel human cytomegalovirus bacterial artificial chromosome tailored for transduction of exogenous sequences.Virus Research http://dx.doi.org/10.1016/j.virusres.2017.09.007

Generation of a novel human cytomegalovirus bacterial artificial chromosome tailored for transduction of exogenous sequences

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Highlights

- Developed a self-excisable HCMV BAC, TB40/E/Cre.
- Found genome length-associated differences in growth of TB40/E derivatives.
- Utilized the TB40/E/Cre-based system for transduction of exogenous proteins.
- Regulated stability of transduced proteins over periods as short as 2 h.
- TB40/E/Cre has diverse applications for study of HCMV replication and cell biology.

Abstract

The study of herpesviruses, including human cytomegalovirus (HCMV), is complicated by viral genome complexity and inefficient methods for genetic manipulation in tissue culture. Reverse genetics of herpesviruses has been facilitated by propagating their genomes in *E. coli* as bacterial artificial chromosomes (BACs), which enables complex and precise genetic manipulation using bacterial recombinational systems.

Internal capsid volume imposes a strict limit on the length of genome that can be packaged efficiently. This necessitates deletion of presumably nonessential segments