

OptiPrep™ Reference List RV01

GROUP I VIRUSES

- ◆ The seven groups of the Baltimore classification system are defined by the type of viral genome and the replication method. Each group contains a variety of virus types defined by structural and biological features. The OptiPrep™ reference lists are based on the Baltimore system; within each group, viruses are listed alphabetically according to family, genus and species. Where necessary, references are further divided alphabetically according to research topic/sub-topic.
- ◆ Publications are listed alphabetically by first author.
- ◆ Multiple entries from the same first author are listed chronologically.
- ◆ For detailed methodologies of Group I virus purification see OptiPrep™ Application Sheets V07-V13. V06 is a methodological review of OptiPrep™ technology.

1 Adenoviridae

1a Adenovirus and adeno-associated virus

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- De Luna Vieira, I.**, Tamura, R.E., Hunger, A. and Strauss, B.E. (2019) *Distinct roles of direct transduction versus exposure to the tumor secretome on murine endothelial cells after melanoma gene therapy with interferon-β and p19Arf* J. Interferon Cytokine Res., **39**, 246-258
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- Laborda, E.**, Puig-Saus, C., Cascalló, M., Chillón, M. and Alemany, R. (2013) *Adeno-associated virus enhances wild-type and oncolytic adenovirus spread* Hum. Gene Ther. Methods **24**, 372–380
- Le Lay, S.**, Hajduch, E., Lindsay, M.R., Le Lièvre, X., Thiele, C., Ferré, P., Parton, R.G., Kurzchalia, T., Simons, K. and Dugail, I. (2006) *Cholesterol-induced caveolin targeting to lipid droplets in adipocytes: a role for caveolar endocytosis* Traffic, **7**, 549-561

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2 Asfaviridae

2a African swine fever virus

- Lithgow, P.**, Takamatsu, H., Werling, D., Dixon, L. and Chapman, D. (2014) *Correlation of cell surface marker expression with African swine fever virus infection* Vet. Microbiol., **168**, 413-419
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3. Baculoviridae

Baculovirus vectors

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Strauss, R., Hüser, A., Ni, S., Tuve, S., Kiviat, N., Sow, P.S., Hofmann, C. and Lieber, A. (2007) *Baculovirus-based vaccination vectors allow for efficient induction of immune responses against Plasmodium falciparum circumsporozoite protein* Mol. Ther., **15**, 193-202

Thompson, C.M., Aucoin, M.G. and Kamen, A.A. (2016) *Production of virus-like particles for vaccination* In *Baculovirus and Insect Cell Expression Protocols*, Methods in Molecular Biology, vol. 1350 (ed. Murhammer, D.W.) Springer Science+Business Media New York, pp 3299-315

Wang, Q., Bosch, B.-J., Vlak, J.M., van Oers, M.M., Rottier, P.J. and van Lent, J.W.M. (2016) *Budded baculovirus particle structure revisited* J. Invertebr. Pathol., **134**, 15–22

4. Herpesviridae

4a. Cytomegalovirus

Poglitsch, M., Weichhart, T., Hecking, M., Werzowa, J., Katholnig, K., Antlanger, M., Krmpotic, A., Jonjic, S., Hörla, W.H., Zlabinger, J.G., Puchhammer, E. and Säemann, M.D. (2012) *CMV late phase-induced mTOR activation is essential or efficient virus replication in polarized human macrophages* Am. J. Transplant., **12**, 1458–1468

Rupp, B., Ruzsics, Z., Sacher, T. and Koszinowski, U.H. (2005) *Conditional cytomegalovirus replication in vitro and in vivo* J. Virol., **79**, 486-494

Tsen, S-W.D., Kingsley, D.H., Poweleit, C., Achilefu, S., Soroka, D.S., Wu, T.C. and Tsen, K-T. (2014) *Studies of inactivation mechanism of non-enveloped icosahedral virus by a visible ultrashort pulsed laser* Virol. J., **11**: 20

4b. Epstein-Barr virus

Campion, E.M., Hakimjavadi, R., Loughran, S.T., Phelan, S., Smith, S.M., D'Souza, B.N., Tierney, R.J., Bell, A.I., Cahill, P.A. and Walls, D. (2014) *Repression of the proapoptotic cellular BIK/NBK gene by Epstein-Barr virus antagonizes transforming growth factor β -induced B cell apoptosis* J. Virol., **88**, 5001–5013

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Rowe, M., Raithatha, S. and Shannon-Lowe, C. (2014) *Counteracting effects of cellular notch and Epstein-Barr virus EBNA2: implications for stromal effects on virus-host interactions* J. Virol., **88**, 12065–12076

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Shannon-Lowe, C., Adland, E., Bell, A.I., Delecluse, H.-J., Rickinson, A.B. and Rowe, M. (2009) *Features distinguishing Epstein-Barr virus infections of epithelial cells and B cells: viral genome expression, genome maintenance, and genome amplification* J. Virol., **83**, 7749-7760

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Tierney, R.J., Nagra, J., Rowe, M., Bell, A.I. and Rickinson, A.B. (2015) *The Epstein-Barr virus BamHI C promoter is not essential for B cell immortalization in vitro, but it greatly enhances B cell growth transformation* J. Virol., **89**, 2483-2493

4c. Herpes simplex virus

Angiogenesis

Arafat, W.O., Casado, E., Wang, M., Alvarez, R.D., Siegal, G.P., Glorioso, J.C., Curiel, D.T. and Gomez-Navarro, J. (2000) *Genetically modified CD34⁺ cells exert a cytotoxic bystander effect on human endothelial and cancer cells* Clin. Cancer Res., **6**, 4442-4448

Berto, E., Bozac, A., Volpi, I., Lanzoni, I., Vasquez, F., Melara, N., Manservigi, R. and Marconi, P. (2007) *Antitumor effects of non-replicative herpes simplex vectors expressing antiangiogenic proteins and thymidine kinase on Lewis lung carcinoma establishment and growth* Cancer Gene Ther., **14**, 791-801

Gomez-Navarro, J.L., Contreras, J.L., Arafat, W., Jiang, X.L., Krisky, D., Oligino, T., Marconi, P., Hubbard, B., Glorioso, J.C., Curiel, D.T. and Thomas, J.M. (2000) *Genetically modified CD34⁺ cells as cellular vehicles for gene delivery into areas of angiogenesis in a rhesus model* Gene Ther., **7**, 43-52

Shah, A.C., Price, K.H., Parker, J.N., Samuel, S.L., Meleth, S., Cassady, K.A., Gillespie, G.Y., Whitley, R.J. and Markert, J.M. (2006) *Serial passage through human glioma xenografts selects for a $\Delta\gamma 134.5$ herpes simplex virus type 1 mutant that exhibits decreased neurotoxicity and prolongs survival of mice with experimental brain tumors* J. Virol., **80**, 7308-7315

Anti-neoplastic agents

Cassady, K.A., Bauer, D.F., Roth, J., Chambers, M.R., Shoeb, T., Coleman, J., Prichard, M., Gillespie, Y. and Markert, J.M. (2017) *Pre-clinical Assessment of C134, a chimeric oncolytic herpes simplex virus, in mice and non-human primates* Mol. Ther. Oncolytics, **5**, 1-10

Assembly/cell interactions

Bosse, J.B., Bauerfeind, R., Popilka, L., Marcinowski, L., Taeglich, M., Jung, C., Striebinger, H. et al (2012) *A beta-herpesvirus with fluorescent capsids to study transport in living cells* PLoS One, **7**: e40585

Jambunathan, N., Chowdhury, S., Subramanian, R., Chouljenko, V.N., Walker, J.D. and Kousoulas, K.G. (2011) *Site-specific proteolytic cleavage of the amino terminus of herpes simplex virus glycoprotein K on virion particles inhibits virus entry* J. Virol., **85**, 12910–12918

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Exosome secretion profiles

Heikkilä, O., Ryödi, E. and Hukkanen, V. (2016) *The $\gamma 134.5$ neurovirulence gene of herpes simplex virus 1 modifies the exosome secretion profile in epithelial cells* J. Virol., **90**, 10981-10984

Gene expression/therapy

Goins, W.F., Huang, S., Hall, B., Marzulli, M., Cohen, J.B. and Glorioso, J.C. (2020) *Engineering HSV-1 Vectors for Gene Therapy* In Herpes Simplex Virus: Methods and Protocols, in Methods in Mol. Biol., vol. **2060** (Diefenbach, R.J. and Fraefel, C, eds.20 Springer Science+Business Media LLC New York, pp 73-90

Musarrat, F., Jambunathan, N., Rider, P.J.F., Chouljenko, V.N. and Kousoulas, K.G. (2018) *The amino terminus of herpes simplex virus 1 glycoprotein K (gK) is required for gB binding to Akt, release of intracellular calcium, and fusion of the viral envelope with plasma membranes* J. Virol., **92**: e01842-17

St. Leger, A.J., Peters, B., Sidney, J., Sette, A. and Hendricks, R.L. (2011) *Defining the herpes simplex virus-specific CD8⁺ T cell repertoire in C57BL/6 mice* J. Immunol., **186**, 3927–3933

Glycoprotein K

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HIV infection, in

Caselli, E., Galavan, M., Cassai, E., Caruso, A., Sighinolfi, L. and Di Luca, D. (2005) *Human herpesvirus 8 enhances human immunodeficiency virus replication in acutely infected cells and induces reactivation in latently infected cells* Blood, **106**, 2790-2797

HLA modification

Caselli, E., Campioni, D., Cavazzini, F., Gentili, V., Bortolotti, D., Cuneo, A., Di Luca, D. and Rizzo, R. (2015) *Acute human herpesvirus-6A infection of human mesothelial cells modulates HLA molecules* Arch. Virol., **160**, 2141–2149

Host cell proteins

Hammarstedt, M., Ahlqvist, J., Jacobson, S., Garoff, H. and Fogdell-Hahn, A. (2007) *Purification of infectious human herpesvirus 6A virions and association of host cell proteins* Virol J. **4**:101

Immunosurveillance

Frank, G.M., Lepisto, A.J., Freeman, M.L., Sheridan, B.S., Cherpès, T.L. and Hendricks, R.L. (2010) *Early CD4⁺ T cell help prevents partial CD8⁺ T cell exhaustion and promotes maintenance of herpes simplex virus 1 latency* J. Immunol., **184**, 277-286

Frank, G.M., Buela, K-A.G., Maker, D.M., Harvey, S.A.K. and Hendricks, R.L. (2012) *Early responding dendritic cells direct the local NK response to control herpes simplex virus 1 infection within the cornea* J. Immunol., **188**, 1350–1359

Infectivity studies

Ahlqvist, J., Hammarstadt, M., Jacobson, S., Garoff, H. and Fogdell-Hahn, A. (2006) *Identification of host cell proteins in purified infectious humanherpesvirus 6A (HHV-6A) viral particles* J. Neuroimmunol., **178**, Suppl. 1, 114

Avanzi, S., Leoni, V., Rotola, A., Alviano, F., Solimando2, L., Lanzoni, G., Bonsi, L., Di Luca, D., Marchionni, C., Alvisi, G. and Ripalti, A. (2013) *Susceptibility of human placenta derived mesenchymal stromal/stem cells to human herpesviruses infection* PLoS One, **8**: e71412

Becerra-Artiles, A., Santoro, T. and Stern, L.J. (2018) *Evaluation of a method to measure HHV-6B infection in vitro based on cell size* Virol. J., **15**: 4

Bozac, A., Berto, E., Vasquez, F., Grandi, P., Caputo, A., Manservigi, R., Ensoli, B. and Marconi, P. (2006) *Expression of human immunodeficiency virus type 1 tat from a replication-deficient herpes simplex type 1 vector induces antigen-specific T cell responses* Vaccine, **24**, 7148-7158

Caselli, E., Fiorentini, S., Amici, C., Di Luca, D., Caruso, A. and Santoro, M.G. (2007) *Human herpesvirus 8 acute infection of endothelial cells induces monocyte chemoattractant protein 1-dependent capillary-like structure formation: role of the IKK/NF- κ B pathway* Blood, **109**, 2718-2726

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Decman, V., Kinchington, P.R., Harvey, S.A. and Hendricks, R.L. (2005) *Gamma interferon can block herpes simplex virus type 1 reactivation from latency, even in the presence of late gene expression* J. Virol., **79**, 10339-10347

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Lepisto, A.J., Frank, G.M., Xu, M., Stuart, P.M. and Hendricks, R.L. (2006) *CD8 T cells mediate transient Herpes stromal keratitis in CD4-deficient mice* Invest. Ophthalmol. Vis. Sci., **47**, 3400-3409

Lepisto, A.J., Xu, M., Yagita, H., Weinberg, A.D. and Hendricks, R.L. (2007) *Expression and function of the OX40/OX40L costimulatory pair during herpes stromal keratitis* J. Leukoc. Biol., **81**, 766-774

Prabhakaran, K., Sheridan, B.S., Kinchington, P.R., Khann, K.M., Decman, V., Lathrop, K. and Hendricks, R.L. (2005) *Sensory neurons regulate the effector functions of CD8⁺ T cells in controlling HSV-1 latency ex vivo* Immunity, **23**, 515-525

Sheridan, B.S., Khanna, K.M., Frank, G.M. and Hendricks, R.L. (2006) *Latent virus influences the generation and maintenance of CD8⁺ T cell memory* J. Immunol., **177**, 8356-8364

Sheridan, B.S., Cherpès, T.L., Urban, J., Kalinski, P. and Hendricks, R.L. (2009) *Reevaluating the CD8 T-cell response to herpes simplex virus type 1: involvement of CD8 T cells reactive to subdominant epitopes* J. Virol., **83**, 2237-2245

St. Leger, A.J., Jeon, S. and Hendricks, R.L. (2013) *Broadening the repertoire of functional herpes simplex virus type 1-specific CD8⁺ T cells reduces viral reactivation from latency in sensory ganglia* J. Immunol., **191**, 2258–2265

Sun, L., St. Leger, A.J., Yu, C-R., He, C., Mahdi, R.M., Chan, C-C., Wang, H., Morse, III, H.C. and Egwuagu, C.E. (2016) *Interferon regulator factor 8 (IRF8) limits ocular pathology during HSV-1 infection by restraining the activation and expansion of CD8⁺ T cells* PLoS ONE 11(5): e0155420

Xu, M., Lepisto, A.J. and Hendricks, R.L. (2004) *CD154 signaling regulates the Th1 response to herpes simplex virus-1 and inflammation in infected corneas* J. Immunol., **173**, 1232-1239

Interferon regulatory factor

Sun, L., St. Leger, A.J., Yu, C-R., He, C., Mahdi, R.M., Chan, C-C., Wang, H., Morse, III, H.C. and Egwuagu, C.E. (2016) *Interferon regulator factor 8 (IRF8) limits ocular pathology during HSV-1 infection by restraining the activation and expansion of CD8⁺ T cells* PLoS ONE 11(5): e0155420

Karposi's sarcoma associated

Caselli, E., Fiorentini, S., Amici, C., Di Luca, D., Caruso, A. and Santoro, M.G. (2007) *Human herpesvirus 8 acute infection of endothelial cells induces monocyte chemoattractant protein 1-dependent capillary-like structure formation: role of the IKK/NF- κ B pathway* Blood, **109**, 2718-2726

Garrigues, H.J., Rubinchikova, Y.E., DiPersio, C. and Rose, T.M. (2008) *Integrin $\alpha_V\beta_3$ binds to the RGD motif of glycoprotein B of Kaposi's sarcoma-associated herpesvirus and functions as an RGD-dependent entry receptor* J. Virol., **82**, 1570-1580

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Latency, recovery from

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L2 antibodies

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LPS-derivative (non-toxic)

Han, J.E., Kim, H.K., Park, S.A., Lee, S.J., Kim, H.J., Son, G.H., Kim, Y.T., Cho, Y.J., Kim, H-J. and Lee, N.G. (2010) *A nontoxic derivative of lipopolysaccharide increases immune responses to Gardasil® HPV vaccine in mice* Int. Immunopharmacol., **10**, 169-176

Measles-vectored vaccine

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Memory B cells

Scherer, E.M., Smith, R.A., Simonich, C.A., Niyonzima, N., Carter, J.J. and Galloway, D.A. (2014) *Characteristics of memory B cells elicited by a highly efficacious HPV vaccine in subjects with no pre-existing immunity* PLoS Pathog., **10**: e1004461

MUC1 peptide – VLP conjugate

Pejawar-Gaddy, S., Rajawat, Y., Hilioti, Z., Xue, J., Gaddy, D.F., Finn, O.J., Viscidi, R.P. and Bossis, I. (2010) *Generation of a tumor vaccine candidate based on conjugation of a MUC1 peptide to polyionic papillomavirus virus-like particles* Cancer Immunol. Immunother. **59**, 1685–1696 **(B)**

Placental malarial antigen

Thrane, S., Janitzek, C.M., Agerbæk, M.O., Ditlev, S.B., Resende, M., Nielsen, M.A., Theander, T.G., Salanti, A. and Sander, A.F. (2015) *A novel virus-like particle based vaccine platform displaying the placental malaria antigen VAR2CSA* PLoS One, **10**: e0143071

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Matić, S., Masenga, V., Poli, A., Rinaldi, R., Milne, R.G., Vecchiati, M. and Noris, E. (2012) *Comparative analysis of recombinant human papillomavirus 8 L1 production in plants by a variety of expression systems and purification methods* Plant Biotechnol. J., **10**, 410–421

Prophylactic immunization

Ahn, J., Peng, S., Hung, C-F., Roden, R.B.S. and Best, S.R. (2018) *Prophylactic immunization with human papillomavirus vaccines induces oral immunity in mice* Laryngoscope, **128**, E16–E20

Salmonella-based

Baud, D., Ponci, F., Bobst, M., De Gandhi, P. and Nardelli-Haeffliger, D. (2004) *Improved efficiency of a Salmonella-based vaccine against human papillomavirus type 16 virus-like particles achieved by using a codon-optimized version of L1* J. Virol., **78**, 12901-12909

Frailery, D., Baud, D., Pang, S.Y-Y., Schiller, J., Bobst, M., Zosso, N., Ponci, F. and Nardelli-Haeffliger, D. (2007) *Salmonella enterica serovar typhi Ty21a expressing human papillomavirus type 16 L1 as a potential live vaccine against cervical cancer and typhoid fever* Clin. Vaccine Immunol., **14**, 1285-129

Thermostability

Hassett, K.J., Meinerz, N.M., Semmelmann, F., Cousins, M.C., Garcea, R.L. and Randolph, T.W. (2015) *Development of a highly thermostable, adjuvanted human papillomavirus vaccine* Eur. J. Pharm. Biopharm., **94**, 220–228

Vaccination status

Grant, B.D., Smith, C.A., Castle, P.E., Scheurer, M.E. and Richards-Kortum, R. (2016) *A paper-based immunoassay to determine HPV vaccination status at the point-of-care* Vaccine, **34**, 5656–5663

VLP-vaccines

Huber, B., Schellenbacher, C., Jindra, C., Fink, D. Shafti-Keramat, S. Kirnbauer, R. (2015) *A chimeric 18L1-45RG1 virus-like particle vaccine cross-protects against oncogenic alpha-7 human papillomavirus types* PLoS One, **10**: e0120152

Yeast-expressed

Kim, S.N., Jeong, H.S., Park, S.N. and Kim, H-J. (2007) *Purification and immunogenicity study of human papillomavirus type 16 L1 protein in Saccharomyces cerevisiae* J. Virol. Methods, **139**, 24-30

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11. Phycodnaviridae (Chlorella viruses)

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Dunigan, D.D., Al-Sammak, M., Al-Ameeli, Z., Agarkova, I.V., DeLong, J.P. and Van Etten, J.L. (2019) *Chloroviruses lure hosts through long-distance chemical signaling* J. Virol., **93**: e01688-18

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