

What is claimed is:

1. A peptide consisting of one or more epitopes set forth in SEQ ID NOs: 2-9, 11-13, 15-17, 22-33, 36-37, 39-44, 46, 48, 53, 55-71, 73-75, 82-90, 92, 98-108, 110-112, 114, and 118-122.
2. An isolated nucleic acid encoding the peptide according to claim 1.
3. A pharmaceutical composition for preventing and/or treating polyomavirus infections and/or polyomavirus-associated diseases, the composition comprising at least three of the peptides according to claim 1 or claim 2, and a pharmaceutically acceptable carrier.
4. A pharmaceutical composition for preventing and/or treating polyomavirus infections and/or polyomavirus-associated diseases comprising the isolated nucleic acid of claim 2.
5. A vaccine composition for preventing polyomavirus infections and/or polyomavirus-associated diseases, the vaccine comprising at least three of the peptides of any one of claims 1 to 4 and a pharmaceutically acceptable carrier.
6. A pool of immunogenic peptides comprising HLA class I and/or class II-restricted JCV peptide epitopes capable of inducing proliferation of peptide-specific T cells, wherein the peptide pool comprises at least three of the epitope amino acid sequences set forth in SEQ ID NOs 1-122, or combinations thereof.
7. An *in vitro* method of expanding JC virus-specific T cells for adoptive immunotherapy, the method comprising:
 - (i) contacting one or more cells comprising peripheral blood mononuclear cells (PBMCs) isolated from a subject with the peptide consisting of one or more of the epitopes set forth in SEQ ID NOs: 1-9, 11-13, 15-17, 22-33, 36-37, 39-44, 46, 48, 53, 55-71, 73-75, 82-90, 92, 98-108, 110-112, 114, and 118-122, or the pool of immunogenic peptides, wherein the peptide pool comprises at least three of the epitope amino acid sequences set forth in SEQ ID NOs: 1-122, or combinations thereof; and
 - (ii) culturing the one or more cells under conditions such that JC virus-specific T-cells are expanded from said one or more cells.
8. Cytotoxic T cells (CTLs) that recognize one an epitopes set forth in SEQ ID NOs: 1-9, 11-13, 15-17, 22-33, 36-37, 39-44, 46, 48, 53, 55-71, 73-75, 82-90, 92, 98-108, 110-112, 114, and 118-122, or at least three of the epitope amino acid sequences set forth in SEQ ID NOs: 1-122, for treating or preventing a polyomavirus infection in a subject.
9. Use of a medicament comprising CTLs and T cell receptors that recognize one an epitopes set forth in SEQ ID NOs: 1-9, 11-13, 15-17, 22-33, 36-37, 39-44, 46, 48, 53, 55-71, 73-75, 82-90, 92, 98-108, 110-112, 114, and 118-122, or at least three of the

epitope amino acid sequences set forth in SEQ ID NOs: 1-122, for treating or preventing a polyomavirus infection in a subject.

10. An *in vitro* method of inducing proliferation of polyomavirus-specific CTLs, comprising contacting the CTLs with antigen-presenting cells (APCs) that present three or more polyomavirus peptides comprising any one of the epitopes selected from any one of SEQ ID NOs: 1-122.