

## Vaccine for BK Polyomavirus-associated Infections in Transplant Recipients

### Summary (1024-character limit)

NCI researches identified a BK polyomavirus (BKV) virulent strain that causes chronic urinary tract infections, and the development of vaccine and therapeutic methods that would block BKV pathogenesis. The NCI Laboratory of Cellular Oncology, seek parties to license or co-develop this technology.

### NIH Reference Number

E-168-2011

### Product Type

- Vaccines

### Keywords

- UTI, vaccine, therapeutic, BK polyomavirus

### Collaboration Opportunity

This invention is available for licensing and co-development.

### Contact

- John D. Hewes  
NCI - National Cancer Institute

240-276-5515

[John.Hewes@nih.gov](mailto:John.Hewes@nih.gov)

### Description of Technology

Nearly all adults have chronic urinary tract infections with one or more strains of BK polyomavirus (BKV). In healthy persons, the infection is controlled by the immune system and no symptoms are apparent. However, immunosuppressed persons, such as organ transplant recipients, can suffer from bladder disease or kidney disease caused by uncontrolled BKV growth. BKV causes cancer in animals; it is unknown if the same is true in humans. A significant need remains for a means of preventing BKV infection and associated pathologies.

Researchers at the National Cancer Institute, NIH, developed compositions and therapeutic methods for pre-vaccination of organ transplant recipients against BKV and prognostic methods to identify patients that may benefit from the vaccination. Methods for producing a BKV vaccine against all four known BKV serotypes are in development.

The NCI Center for Cancer Research, Laboratory of Cellular Oncology, seek parties to license or co-

develop this technology.

### Potential Commercial Applications

- An effective multivalent BKV vaccine to prevent BKV-associated pathologies of the urinary tract and bladder.
- A prognostic kit to determine clinical benefit.
- Tests for identifying renal transplant donors and recipients.

### Competitive Advantages

- A successful proof-of-principle study in mice has been conducted.
- The inventors have identified the major virulent BKV serotype.
- No vaccine for BKV infection currently exists.
- If BKV is linked to cancer, the technology might be relevant to vaccines applicable to the general public.

### Inventor(s)

[Christopher Buck \(NCI\)](#), [Diana Pastrana \(NCI\)](#)

### Development Stage

- Pre-clinical (in vivo)

### Publications

[Pastrana DV et al. Neutralization serotyping of BK polyomavirus infection in kidney transplant recipients \[PMID: 22511874\]](#)

### Patent Status

- **U.S. Provisional:** U.S. Provisional Patent Application Number PCT 61/508,897, Filed 18 Jul 2011
- **Foreign Issued:** Japan - Patent Number 6030650, Issued 28 Oct 2016

### Therapeutic Area

- Cancer/Neoplasm
- Immune System and Inflammation
- Kidney and the Genitourinary