

TREATING OR INHIBITING JC POLYOMAVIRUS INFECTION AND JC POLYOMAVIRUS-ASSOCIATED PROGRESSIVE MULTIFOCAL LEUKOENCEPHALOPATHY

SUMMARY

Novel vaccine to prevent progressive multifocal leukencephalopathy by neutralizing JC virus

REFERENCE NUMBER

E-549-2013

PRODUCT TYPE

- Diagnostics
- Therapeutics
- Vaccines

KEYWORDS

- JC Virus
- Progressive Multifocal Leukencephalopathy
- Immunosuppressive Drugs

COLLABORATION OPPORTUNITY

This invention is available for licensing and co-development.

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DESCRIPTION OF TECHNOLOGY

Progressive Multifocal Leukencephalopathy (PML) is a rare but lethal brain disease caused by JC polyomavirus. PML is a well-known side-effect of immunosuppressive drugs, and currently the only effective intervention is immune reconstitution, which does not reverse existing brain damage and is frequently associated with destructive brain inflammation.

Scientists at the National Cancer Institute's [Laboratory of Cellular Oncology](#) discovered a method of vaccinating a person to prevent the development of PML, which is a risk of immunosuppressive treatment. The scientists discovered that virus-like particles spontaneously assembled from purified capsid proteins of various naturally occurring JCV isolates have the ability to elicit antibody responses that neutralize the infectivity of PML-associated JCV strains. The vaccine could be offered to patients undergoing immunosuppressive treatment for multiple sclerosis, rheumatoid arthritis, B cell cancers, and

Crohn's disease. Patients infected with HIV also have an elevated risk of developing PML and would thus be candidates for preventive vaccination with JCV vaccines.

POTENTIAL COMMERCIAL APPLICATIONS

- Treatment for JC virus infection and progressive multifocal leukoencephalopathy (PML)
- Vaccine to prevent PML
- Companion diagnostic for the development of PML

COMPETITIVE ADVANTAGES

- First of its kind treatment against PML and JC virus infections
- First of its kind diagnostic for identifying patients at risk for developing PML

INVENTOR(S)

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DEVELOPMENT STAGE

- Pre-clinical (in vivo)

PUBLICATIONS

Buck, CB [PMID:[23843634](#)]

PATENT STATUS

- **U.S. Filed:** PCT Application filed 20 Dec 2014

THERAPEUTIC AREA

- Cancer/Neoplasm
- Central Nervous System, Mental and Behavioral, Pain
- Infectious Diseases