

Philanthropy at Work



RICHARD G. VILE, PH.D.

Consultant in Molecular Medicine
Richard M. Schulze Family Foundation Professor
Professor of Immunology

I would like to thank the Richard M. Schulze Family Foundation for its lasting and invaluable support for my research program. In the current climate, where federal funds are highly limited and other funding sources are highly directed to the COVID-19 pandemic, receiving support of this nature has allowed me to continue with my core research interests of treating pediatric brain tumors with novel immunotherapies.

My Inspiration

During my training, I learned enormous amounts about the basic molecular mechanisms underlying the development of cancer and about how the immune system fails to recognize — and clear — tumors. At the same time, I saw on the wards that children with brain tumors continued to be treated with rather unsophisticated, untargeted drugs and therapies that had multiple and toxic side effects. Therefore, my research is underpinned by the desire to use the elegant molecular and immunological knowledge that we now possess about the disease to develop more effective, gentler therapies with better outcomes and quality of life.

Research Overview

We are continuing to develop novel immunotherapies to treat a pediatric brain tumor called diffuse midline glioma. We have developed viral vectors that express a molecule called CD40L. This protein alerts the immune system to the presence of an invading pathogen. By delivering the CD40L gene/protein to the glioma growing in the brainstem of children, we have shown that the immune system can be re-educated to see the tumor as “foreign” and can induce powerful rejection responses. These studies in mice have now led to us proposing a clinical trial in children. We are currently raising funding to pay for the preparation of the vector to express CD40L for use in patients.

Long-Term Goals

Our long-term goal is to develop novel, gentle and effective immunotherapies for pediatric brain tumors in the laboratory and then to use the unparalleled translational apparatus of Mayo Clinic to test these approaches in clinical trials.

Recent Milestones

In the past year we have published three key papers in high-impact journals that have described effective new approaches to treating brain tumors. These manuscripts have led to the preparation of Investigational New Drug (IND) filings, which will, we hope, lead to FDA approval of new trials in the coming year.

Next Steps

We plan to continue our studies using CD40L in the treatment of gliomas. In particular, we will combine CD40L therapy with additional immunotherapies, including CAR-T cells and immune checkpoint inhibitors. We also hope to be able to submit an IND to the FDA to start a second trial here at Mayo Clinic.

Impact of Philanthropy

The impact of the philanthropic support provided to my laboratory cannot be underestimated. While we continue to attract federal and foundation funding, the benefactor support allows us both to continue our core research activities insulated from the periods of low external funding and to explore novel, high-risk approaches for which we do not yet have preliminary data and are not otherwise funded. Only by being able to develop these new strands of research will we be able to grow our practice and keep at the cutting edge of novel therapeutics for childhood gliomas. In closing, I would like to stress again how grateful I and my whole group are for your support and how valuable this funding has been to my success at Mayo Clinic.