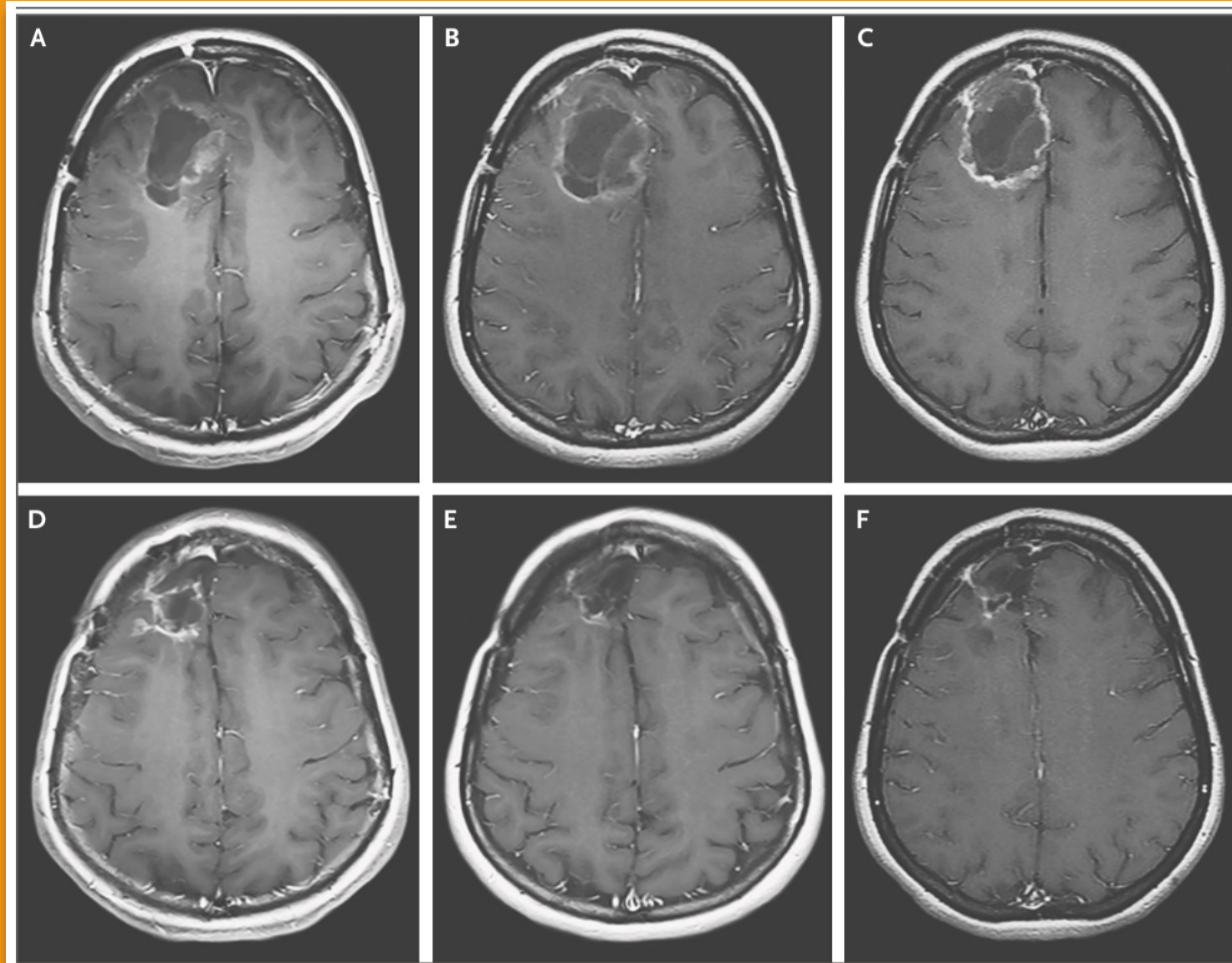


Poliovirus: From Villain to Hero Due to its Possible Use in Treating Glioblastoma

Claire Lapat

Communications in the Biological Sciences

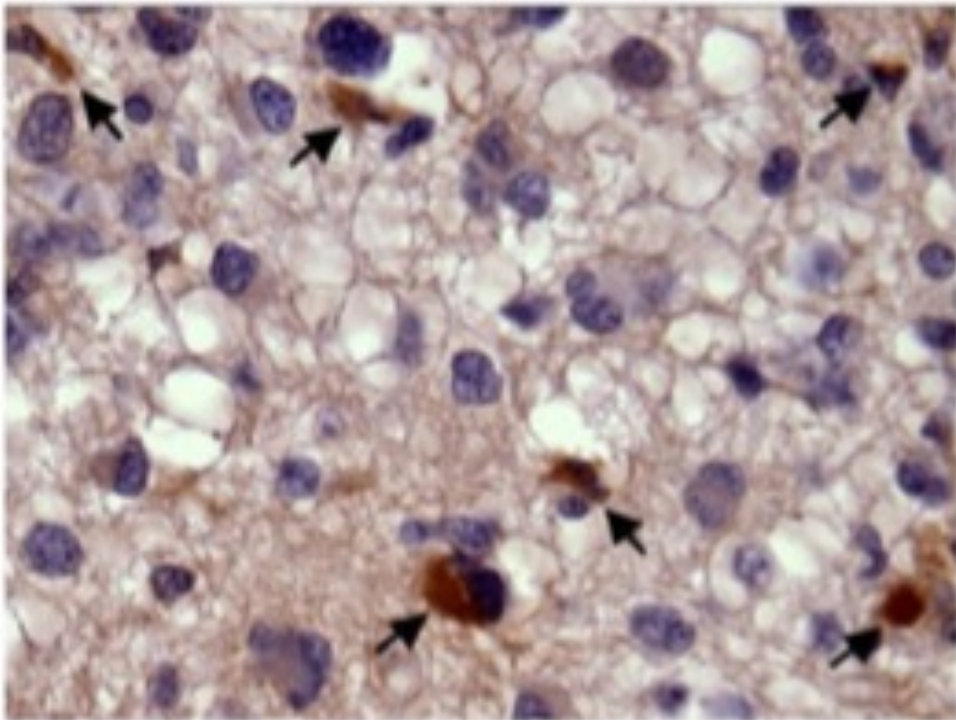
Tuesday 2:00



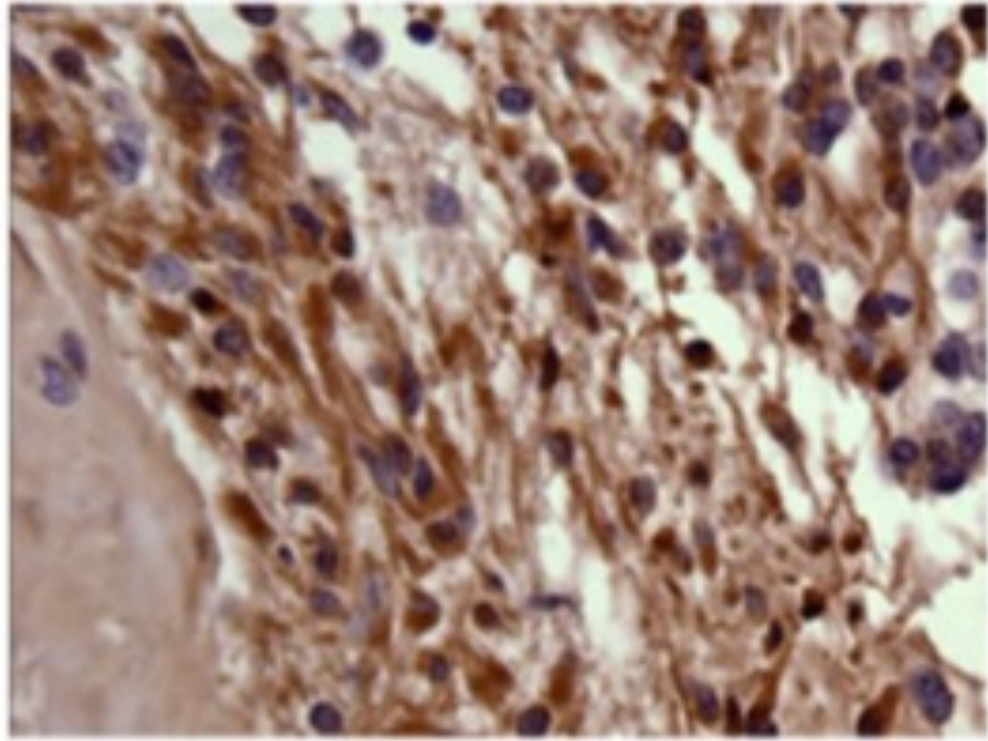
Desjardins, A., M. Gromeier, J. E. Herndon, 2nd, N. Beaubier, D. P. Bolognesi, A. H. Friedman, H. S. Friedman, F. McSherry, A. M. Muscat, S. Nair, K. B. Peters, D. Randazzo, J. H. Sampson, G. Vlahovic, W. T. Harrison, R. E. McLendon, D. Ashley and D. D. Bigner (2018)

Poliovirus receptor CD155 is present in abundance in many malignancies

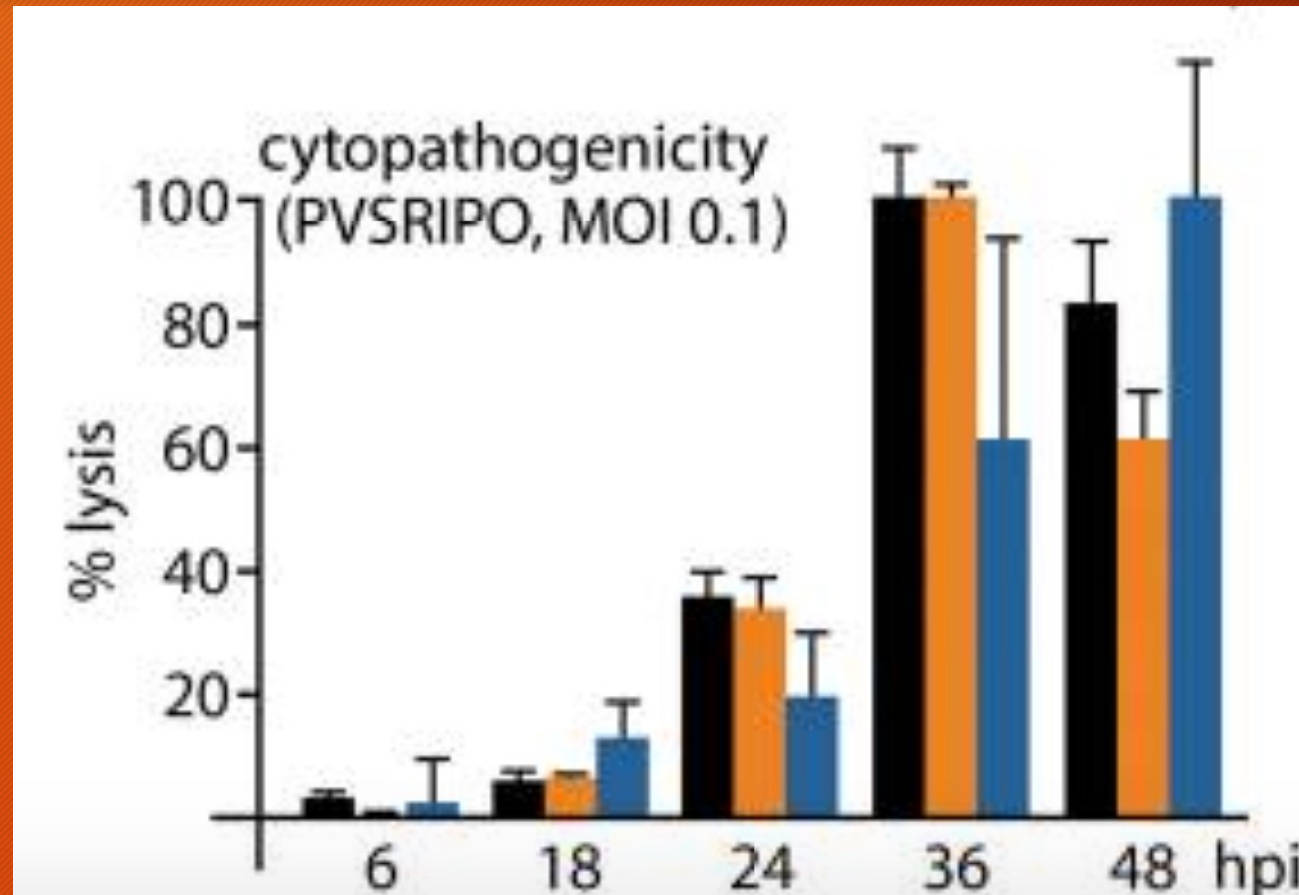
GBM - scattered



GBM - diffuse

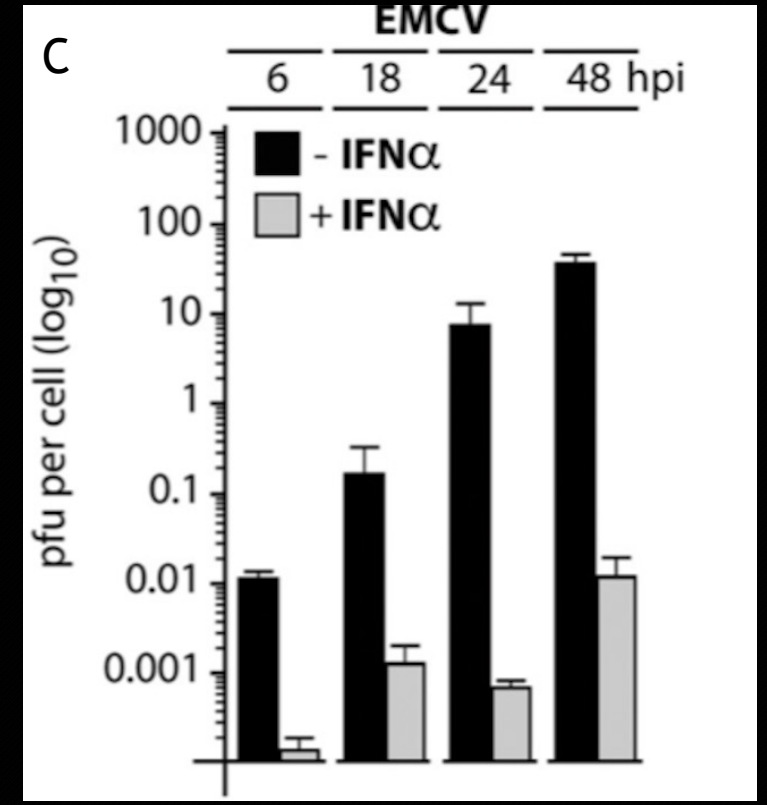
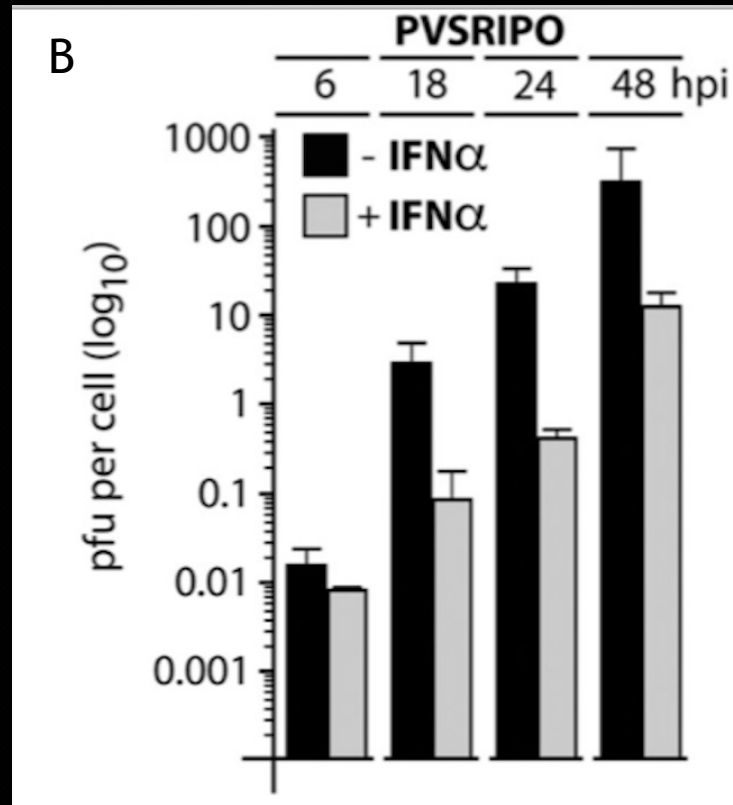
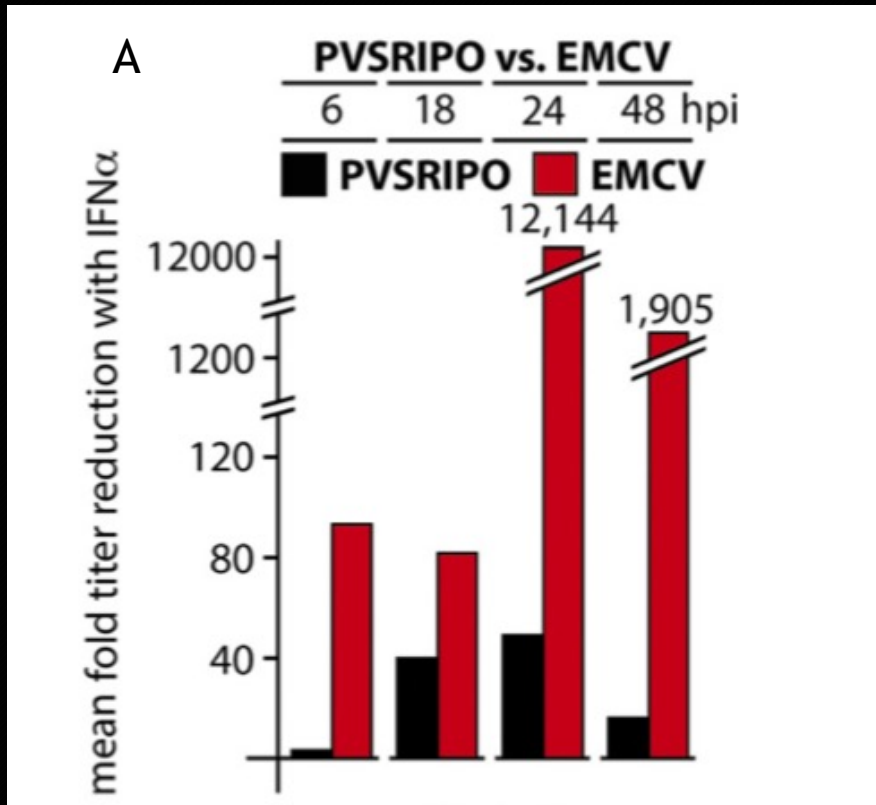


PVSRIPO is an engineered, live-attenuated poliovirus that has oncolytic and cytotoxic capabilities across multiple cell strains



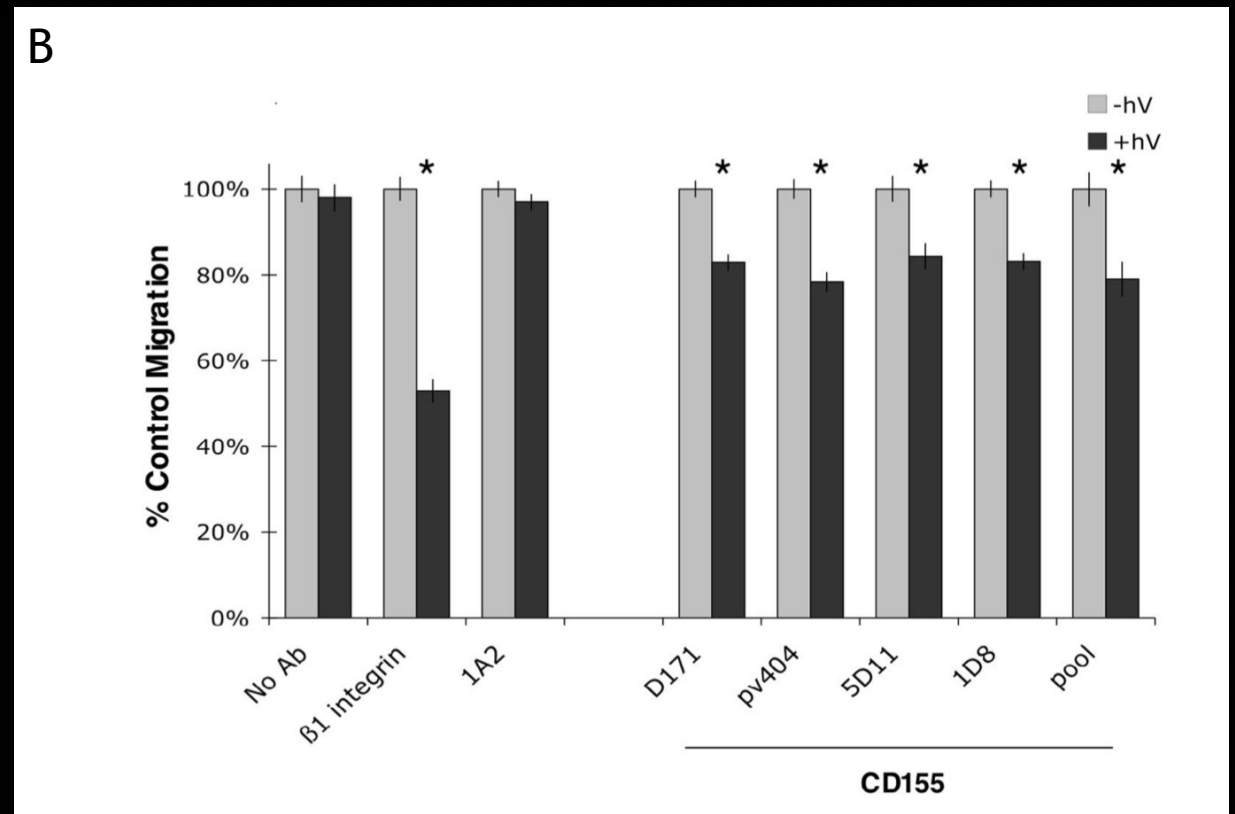
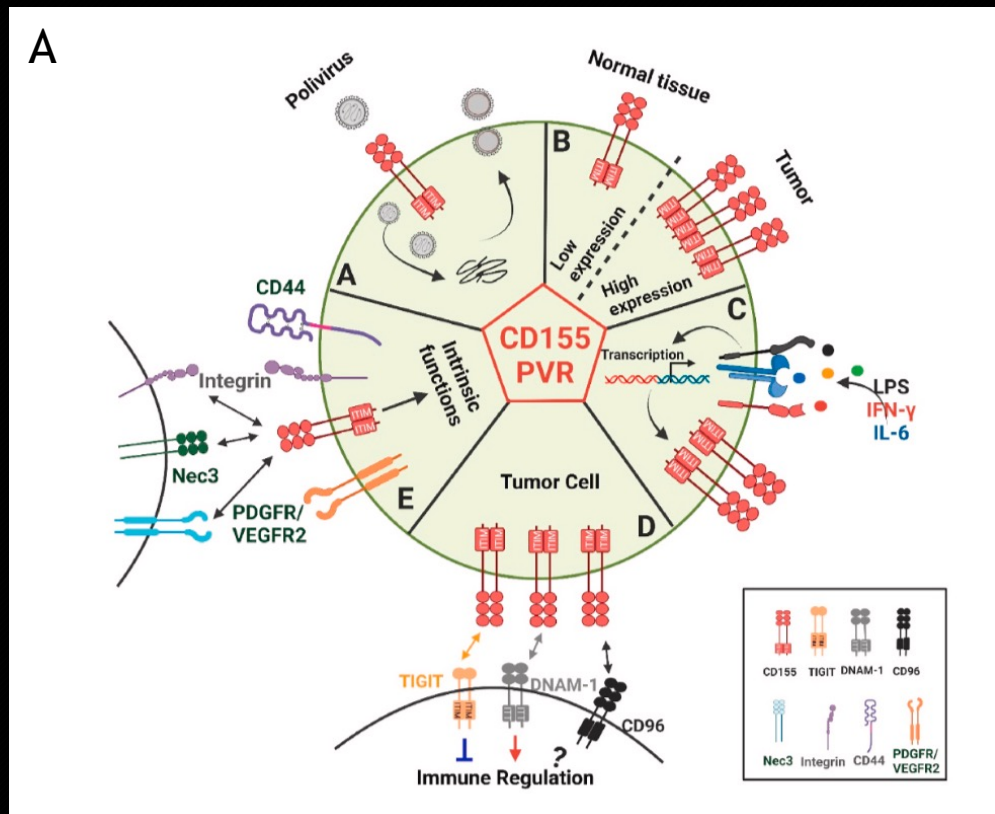
MOI (Multiplicities of infection)
HPI (hours post infection)

When tested side-by-side with encephalomyocarditis virus (ECMV), another picornavirus, PVSRIPO survived and retained cytotoxicity after IFN exposure while ECMV did not

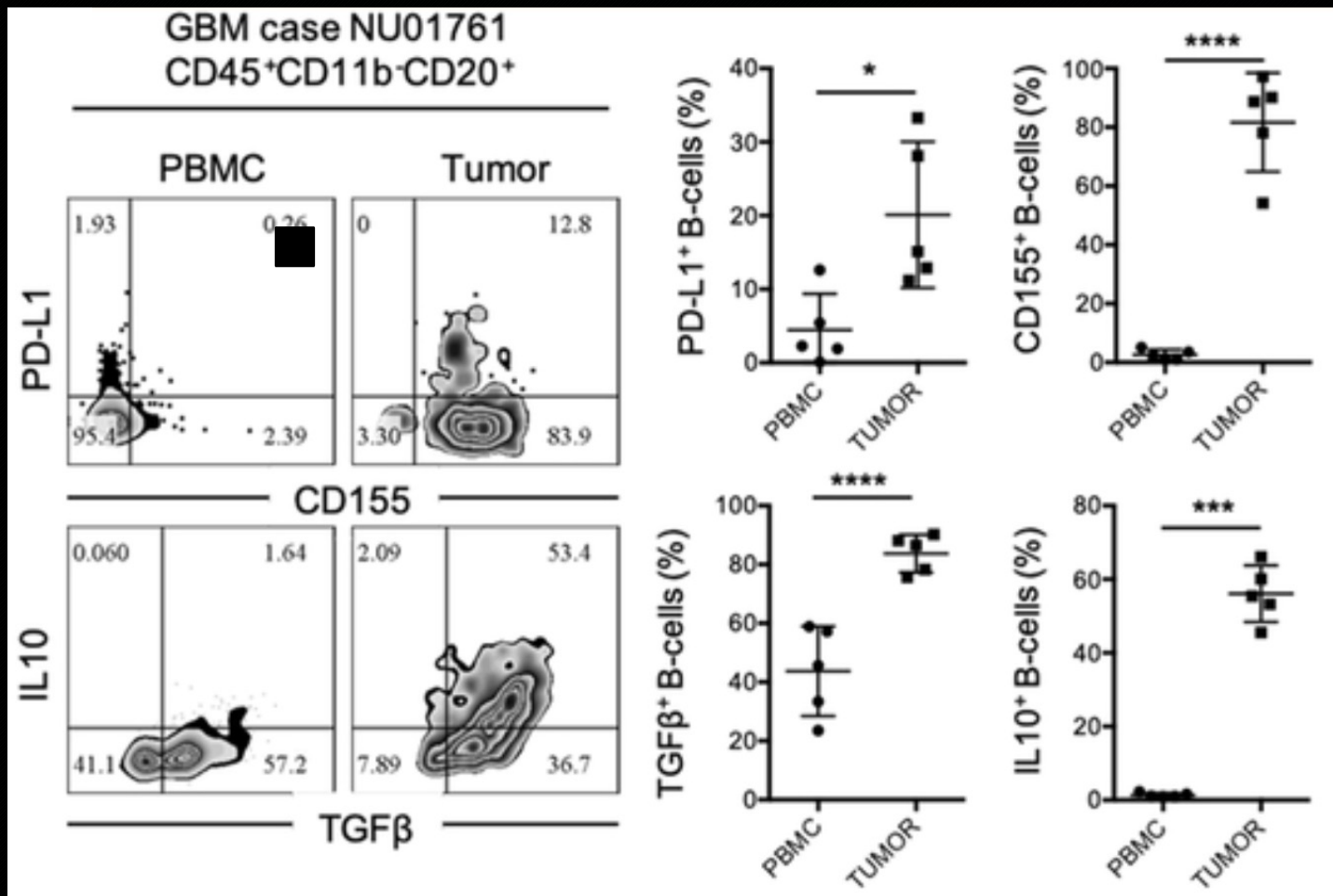


PFU=plaque forming units

CD155 promotes the growth and invasiveness of glioblastoma

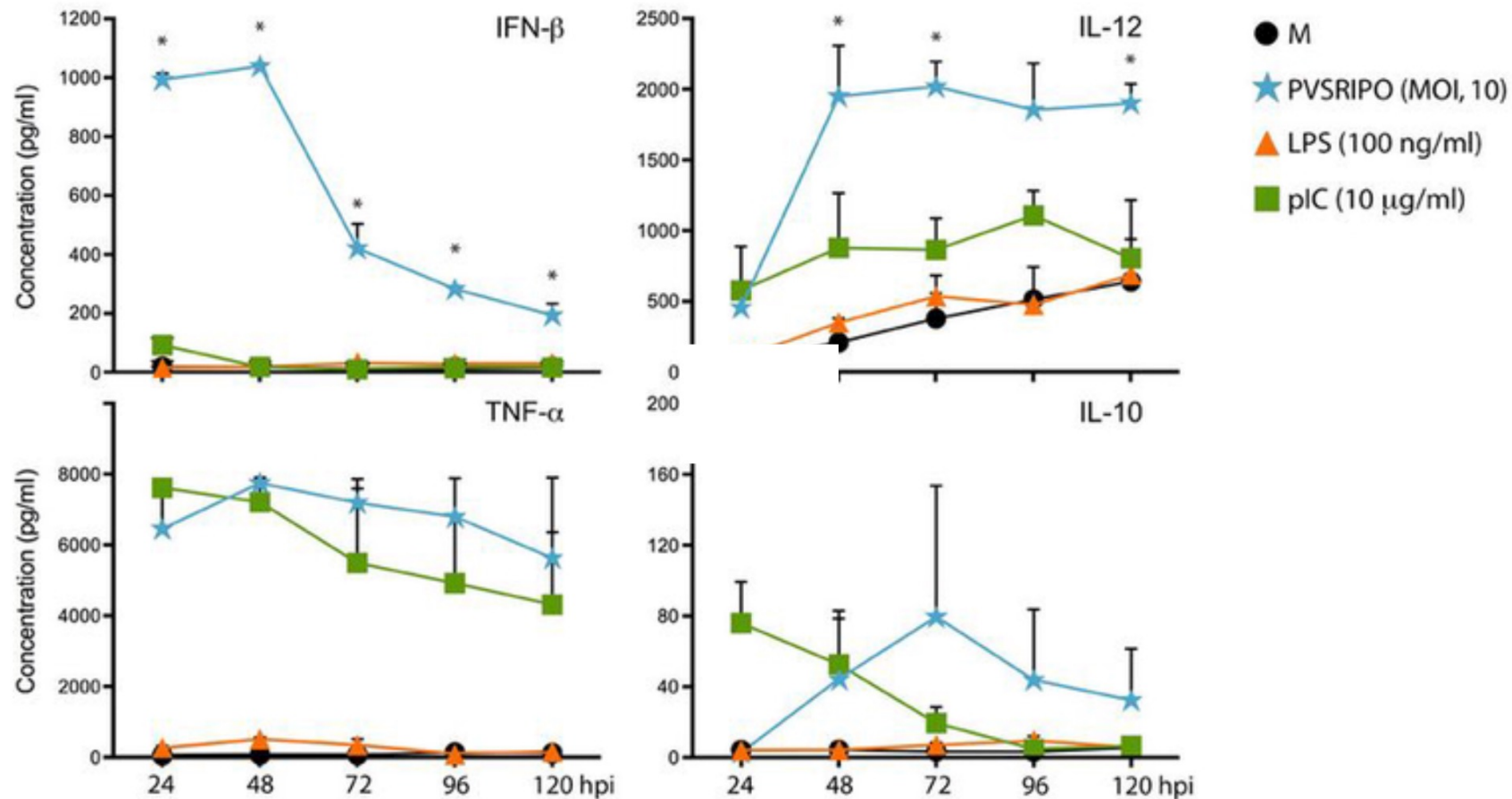


CD155-mediated immunoregulation leads to tumor proliferation by reprogramming and downregulating the host's innate immune system to benefit itself



PBMC (peripheral blood mononuclear cells)

PVSRIPO recruits the host immune system to attack the tumor



Future research into PVSRIPO should be conducted to determine if it is a viable treatment for DIPG, an incurable pediatric cancer



References

Thank you Dr. Ahn for a great semester!

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