Spotlight

By Gina Kirchweger

A Lethal Effect of the H-1PV Virus

Lacroix *et al*.
10.1002/ijc.25168 (Resolve a DOI—http://dx.doi.org)

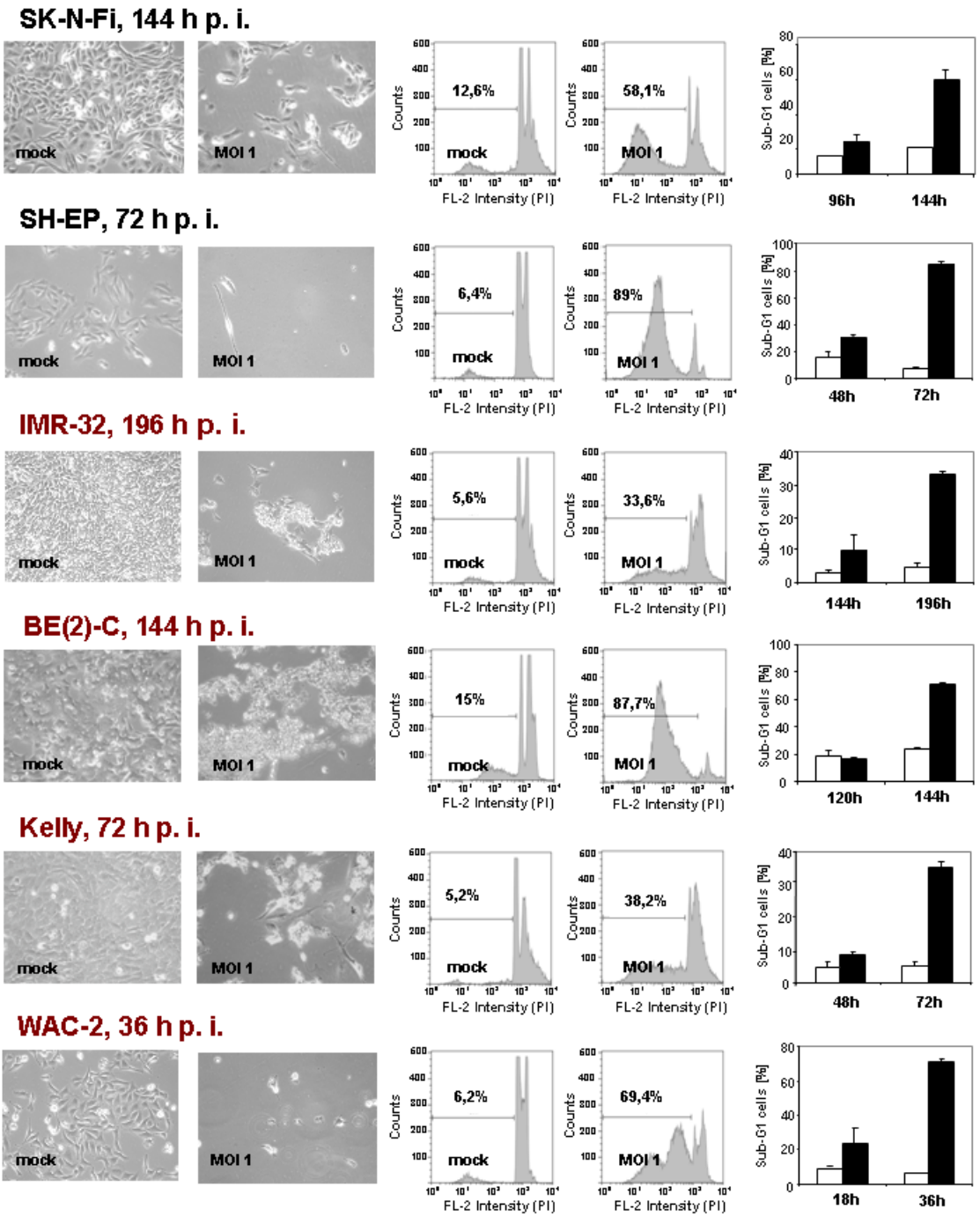
The outcome of neuroblastoma, a common childhood cancer originating from progenitor cells in the sympathetic nervous system, is very heterogeneous. When found early or in very young children, it responds very well to treatment. When detected in advanced stages, however, patients have long-term survival rates hovering around 30% despite multimodal treatment.

In recent years, the idea of using viruses to infect cancer cells and implode them from the inside while leaving healthy cells alone has seen a revival of interest. In particular, a naturally occurring wild-type rodent parvovirus known as H-1PV was found to be cytotoxic for transformed or tumor-derived cells of various species, including cells of human origin, but had never been tested on pediatric tumors such as neuroblastoma.

Lacroix *et al.* found no cytopathic effects of H-1PV on non-malignant infant cells but neuroblastoma cell lines reacted with significant cell lysis within 3 to 7 days irrespective of their MYCN status. Ten out of the 11 examined neuroblastoma cell lines proved more sensitive to H-1PV infection than most other cell culture models of adult malignancies analyzed so far.

In addition, the authors demonstrated that H-1PV successfully replicates in neuroblastoma cell lines, raising the possibility of a potentially self-perpetuating cancer therapy: Each time a virus homes in on a cancer cell and multiplies, the virus ultimately kills the cancer cell and thousands of viral progenies are released, ready to seek out remaining tumor cells and distant micro-metastases.

Figure 4:



H-1PV infection induces apoptosis in neuroblastoma-derived cell lines. On the left panel the cytomorphology of mock-infected and wt H-1PV infected cells are given. Corresponding histograms of mock-infected and wt H-1PV infected cells after propidium iodine staining are shown in the middle panel. On the right panel an

analysis of the proportion of the sub-G1 cells in mock-infected (white columns) versus the cells infected eith 1 pfu/cell H-1PV (black columns) is given.