



Fig. 1. Glioblastoma multiforme in patient no. 1 disappeared and remission has persisted over the past 6 years. Left MRI scan shows contrast enhancing tumour before treatment with antineoplastons A10 and AS2-1. The tumour is no longer visible on scans taken after 9 months and after 5 years and 3 months (middle and right scans).



Fig. 2. Anaplastic astrocytoma in patient no. 4. Complete response in a 12-year-old patient. Left MRI scan shows contrast enhancing tumour before treatment with antineoplastons A10 and AS2-1. Middle and right scans confirm complete resolution of the tumour after 2 years and 5 months and after 4 years and 3 months.

In 1988, the authors entered into a collaboration with Dr Dvorit Samid, later with the NCI.^[13,14] The research by Samid et al. provided an explanation for the mechanism of action of PN and resulted in

phase I and phase II studies on PN, sponsored by the NCI.^[15-17] Based on published data, PN works as a chemical microswitch that turns off signal transduction through the *ras* oncogene pathway by