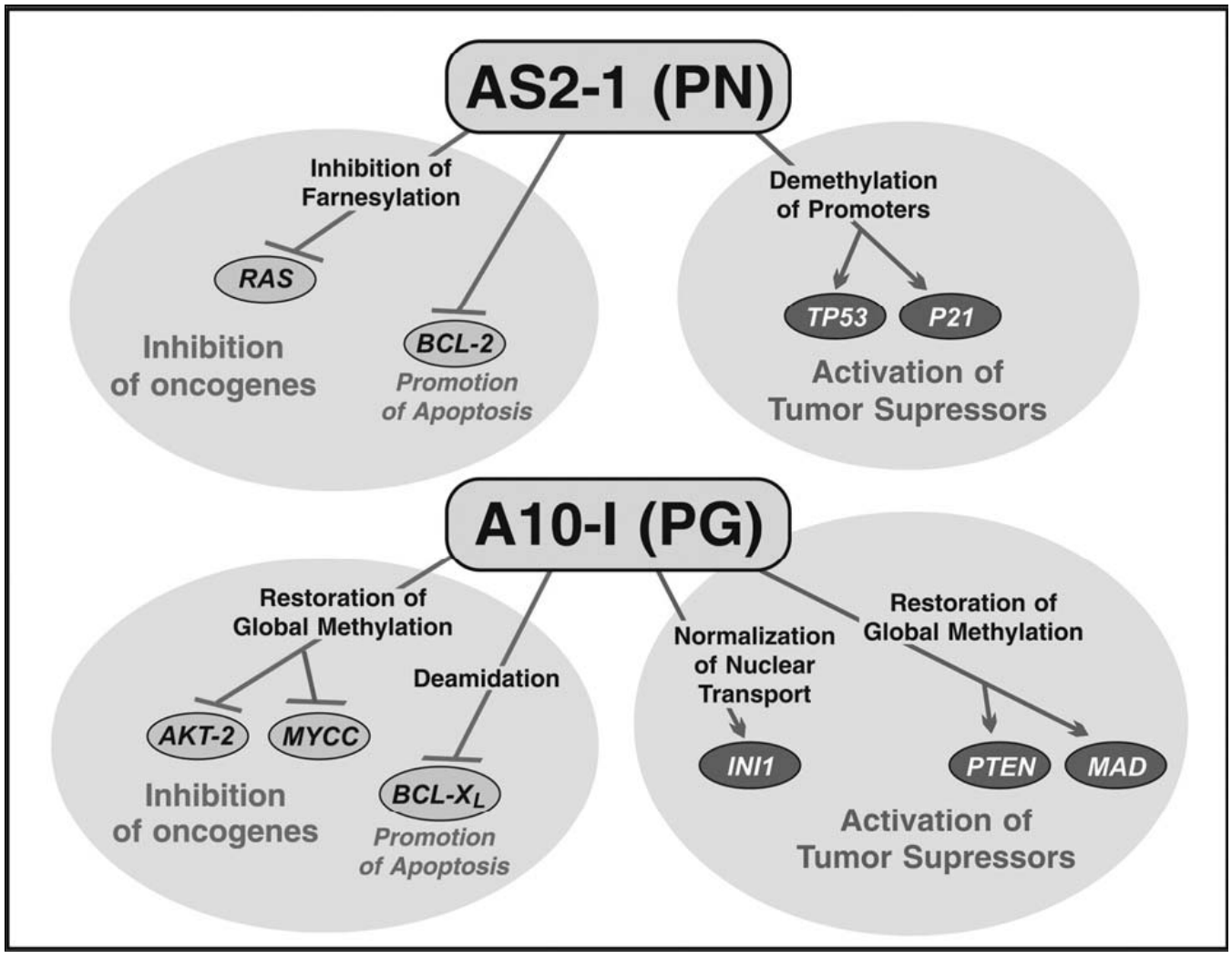
The proposed mechanism of antitumor activity of Antineoplastons (ANPs) in high grade glioma pathology (HBSG)

Phenylacetic acid (PN; the active ingredient of Antineoplaston AS2-1) inhibits farnesylation of protein p21 of the RAS oncogene, inhibits RAS and BCL-2, and activates the tumor suppressor genes TP53 and p21 through demethylation of their promoters.

Phenylacetylglutamine (PG; the main ingredient of Antineoplaston A10 I) restores global methylation of DNA, inhibits the oncogenes AKT2 and MYCC, activates the tumor suppressor genes PTEN and MAD, and restores activity of the mutated INI1 protein through normalization of nuclear transport.

Both PN and PG promote apoptosis: PN through inhibition of BCL-2 and PG through deamidation of the BCL-XL protein.



From:

Targeted Therapy with Antineoplastons A10 and AS2-1 of High-Grade, Recurrent and Progressive Brainstem Glioma.

Burzynski, S.R., Janicki, T.J., Weaver, R.A., Burzynski, B.; Integrative Cancer Therapies, 2006; 40-47