

Abstract

Di-peptidyl peptidase-IV Activity and/or Structure Homologues (DASH) represent a newly defined group of multifunctional molecules, typically bearing dipeptidyl peptidase-IV-like hydrolytic activity. Dipeptidyl peptidase-IV (DPP-IV) cleaves out X-Pro dipeptides from the N-terminus of peptides. Other molecules carrying similar enzyme activity, such as Fibroblast activation protein (FAP), DPP-II, DPP8 and DPP9 or even DPP-IV structure-like but hydrolytically inactive molecules (DPP6 and DPP10) also belong to this group. Recent knowledge suggest a substantial role of DASH in cancer pathogenesis.

The aim of this study is a preparation of a biological model and its use for understanding the mechanisms of interaction(s) between transformed glial cells and stroma in the processes of origin and development of tumors derived from neuroectoderm. Stable transfected human glioblastoma cell lines with inducible gene expression of DPP-IV, Fibroblast activation protein and their enzymatically inactive mutated forms, were prepared within the project.

Prepared cell lines are used as a tool for studying not only the autocrine importance of DPP-IV and FAP for the expressing cells in *in-vitro*, but also for their potential paracrine effect(s) within the tumor microenvironment after homotopic implantation into the brain of immunodeficient mice.

Understanding the mechanisms of tumor and non-tumor cell interactions in gliomagenesis might expand existing therapeutic portfolios of malignant gliomas.