

Gene	Type of gene	Examples of cancers present
AKT	Proto-oncogene	thyroid, small cell lung, non-small cell lung, breast, gastric, pancreatic, ovarian, prostate, renal, endometrial and blood cancers
4EBP1	Proto-oncogene	breast, colon, ovarian and prostate cancers. Poor prognosis Chemotherapy resistance.
eIF4E	Proto-oncogene	Breast, colon, head and neck cancer, non-Hodgkin's lymphomas, and chronic and acute myelogenous leukemias. Poor prognosis
PI3K	Proto-oncogene	High activity Tumour progression ovarian, gastrointestinal, breast and prostate cancers
Rheb	Proto-oncogene	Rheb overexpression – squamous carcinoma. Poor prognosis in breast and head and neck cancers.
S6K1	Proto-oncogene	S6K1 overexpressed in lung and ovary cancers. Poor prognosis in breast, kidney and hepatocellular carcinomas
LKB1	Tumour suppressor genes	Peutz-Jeghers syndrome includes the occurrence of gastrointestinal tract hamartomas.
PTEN phosphatase and tensin homolog	Tumour suppressor genes	Hamartoma tumour syndromes (Cowden disease, Bannayan-Riley-Ruvalcaba syndrome, Proteus syndrome, Lhermitte-Duclos disease) and are at higher risk for developing several cancers: melanoma, prostate cancer, renal, and non-small cell lung cancers
TSC1 or TSC2 Tuberous sclerosis complex (TSC)	Tumour suppressor genes	Development of hamartomas in many organs via TSC1/TSC2. Mutations in TSC2 may also lead to the development of Lymphangiomyomatosis (LAM).