

# Small cell lung cancer pathway, Collagen high vs low tumors

## SMALL CELL LUNG CANCER



Neuroendocrine epithelial cells

Pulmonary neuroendocrine epithelial cell

PHIT  $\rightarrow$  ?  $\rightarrow$  Reduced apoptosis  
Cell-cycle progression

Overexpression

Bcl-2

Mitochondrion

Bax

CytC

Apaf-1

Apoptosis

CASP9

CASP3

Inhibition of apoptosis

Genetic alterations

Oncogene : Myc

Tumor suppressors : RAR $\beta$ , FHIT, p53, RB, PTEN

Primary small cell carcinoma

ECM-receptor interaction

ECM

ITGA

ITGB

FAK

PI3K

PIP3

PKB/Akt

IKK

I $\kappa$ B $\alpha$

NF- $\kappa$ B

Degradation

Focal adhesion

PI3K-Akt signaling pathway

Retinoic acid

p53 signaling pathway

RAR $\beta$

RXR

DNA

Tumour progression

DNA damage

p53

DNA

p21

Bax

p48

GADD45

Bak

FOLK

Uncontrolled proliferation  
Increased survival  
Genomic instability

p15<sup>INK4b</sup>

CDK4/6

CyclinD1

DNA

p27<sup>Kip1</sup>

CDK2

CyclinE

RB

E2F

Cell cycle

DNA

G1/S progression

DNA

Miz1

CKS1

Myc

Max

CyclinD1

Proliferation

cIAPs

Resistance to apoptosis signal

Bcl-XL

TRAFs

Apoptosis

COX-2

iNOS

Angiogenesis

DNA

Metastatic small cell carcinoma

Data on KEGG graph  
Rendered by Pathview