

Apoptosis Genes in Humans

Apoptosis

-in vivo cells are phagocytosed v. rapidly after death

Blocking cell death

- soybean extract (~~protein~~) inhibits diarrhea in AIDS patients
- it is a mix of phospholipids

Genes in Apoptosis

BCL-2 family : B cell lymphoma family

- Anti-apoptotic protein
- not present in some cells (protein level)
- many other homologs (functional)

-why do viruses have this?

Bax - cell death inducer

Bcl-x - cell death inhibitor

Bad -

Mcl-1 -

A1 -

BHRF-1 - Epstein-Barr virus protein

E1B19kD - viral protein (Adenovirus)

LMW-5 kD -

-cloned w/ deg. PCR primers

Ced-9 -

Cdi-1 } = Bak

Cdn-1 }

⚡ - can form homodimers and heterodimers

-many of the effects may be due to interactions between diff. molecules

MUTL? - pro-apoptotic? - no
XPA?

TARGETING BAK

- antisense Ribozymes
- promoter
- two hybrid system

can use to screen for drugs that inhibit interactions (by decr. in tx. activation)

BAK → two pseudogenes

... real gene ... promoter has NF κ B sites

- suggests

BHRF1
EB

 are involved in converting BAK from a pro-apoptotic protein to an antiapoptotic protein.

BLAND

DW

DRY

INFORMATION POOR

NOT FAST

G

Calpains - also have some similarity to BCL-2 family

Other genes

ICE family

Calpain

RPZ

- ion channel?

BAK
OS
R
I
G



Maspin (member of SEPPIN family = serine protease inhibitors)

- extracellular tumor suppressor

- not a serine protease

- inhibitor of motility

- apparently blocks HGF/SF signalling pathway by blocking

c-met signalling.