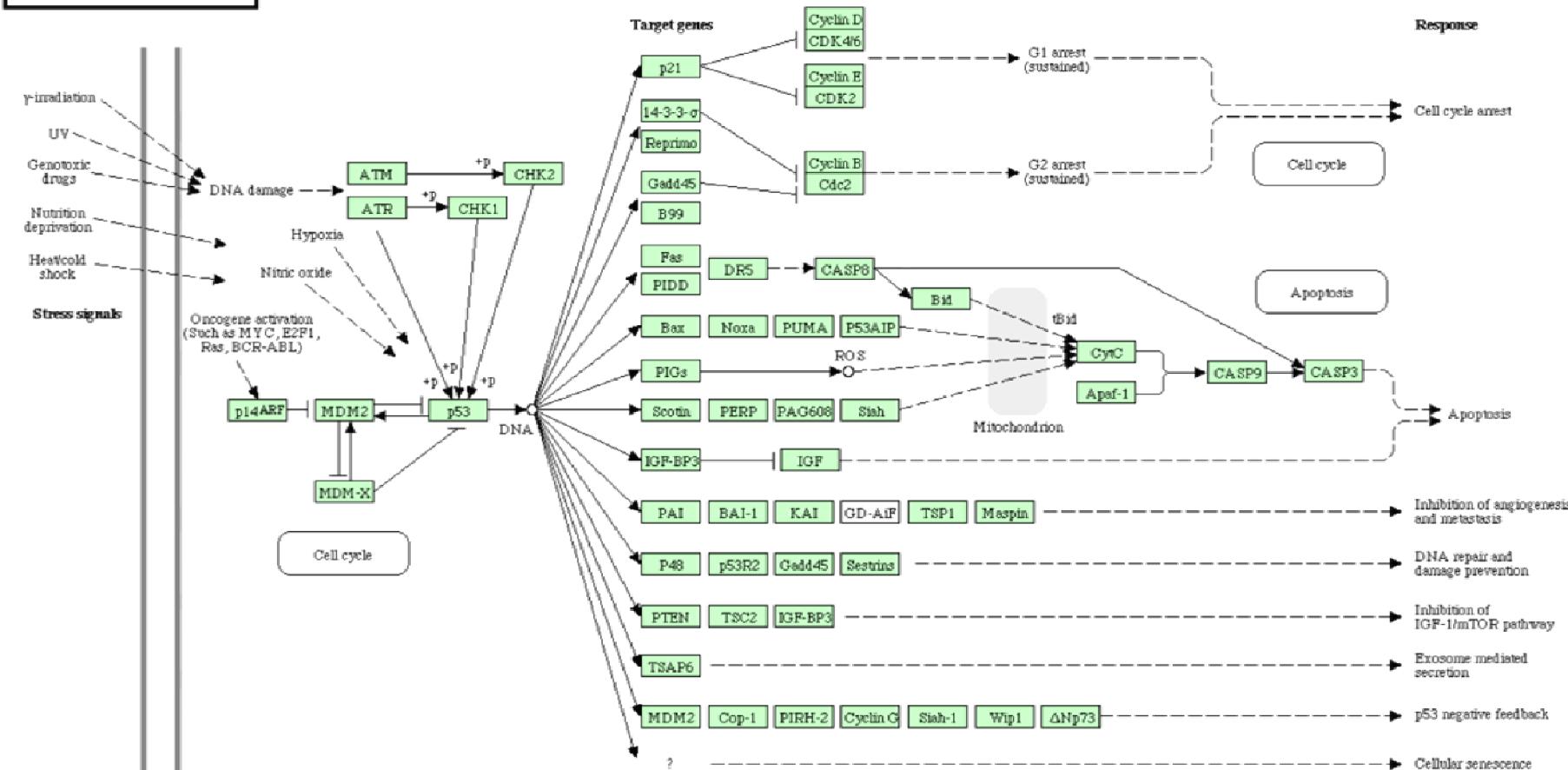


# P53 network

## P53 SIGNALING PATHWAY



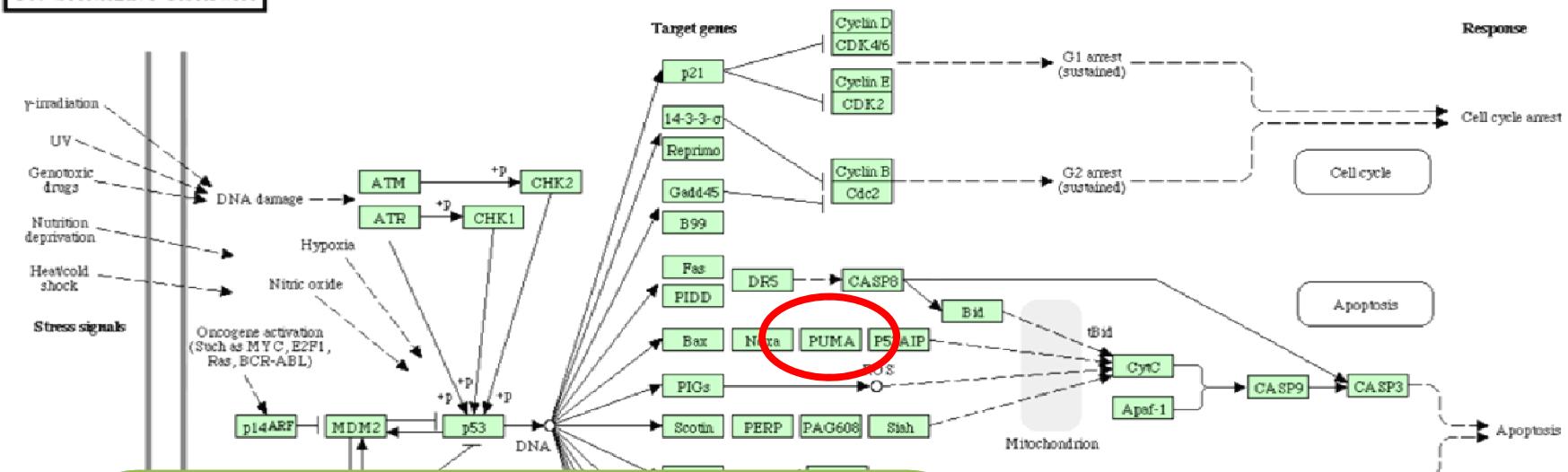
04115 3/31/09  
Kanohisa Laboratories

Биоинформатика  
04112 3/31/08



# P53 network

## P53 SIGNALING PATHWAY



## PUMA

“p53 upregulated modulator of apoptosis”

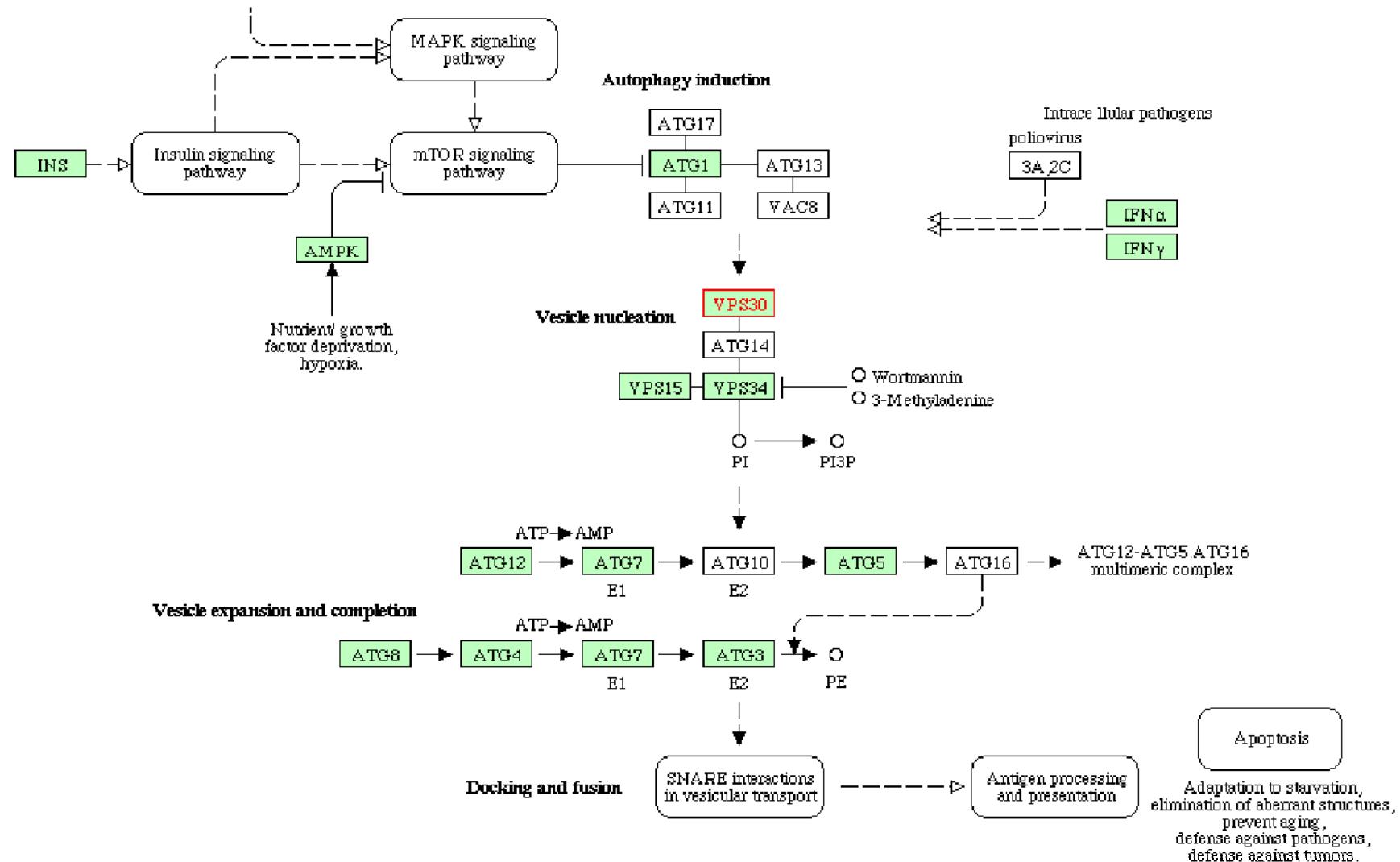
- BH3-only Bcl2 family protein
- direct binding of p53 to the PUMA promoter region
- Induces rapid apoptosis
- Essential mediator of apoptosis
- Heterodimerization with Bcl-2

Yu J, Zhang L et al. (2001): „PUMA induces the Rapid Apoptosis of Colorectal Cancer Cells“



# autophagy network

## REGULATION OF AUTOPHAGY

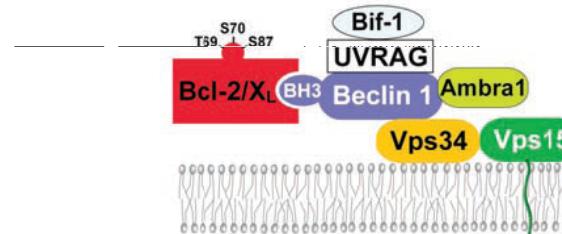
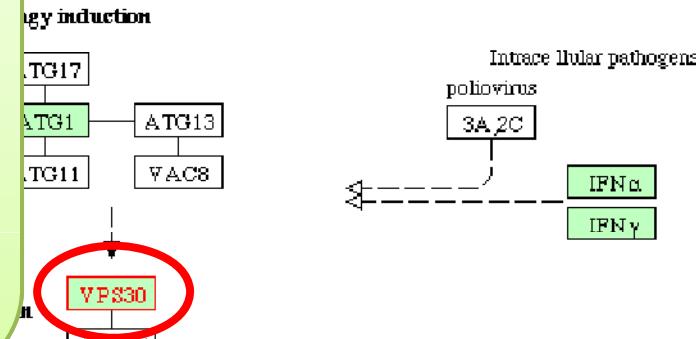


# autophagy network

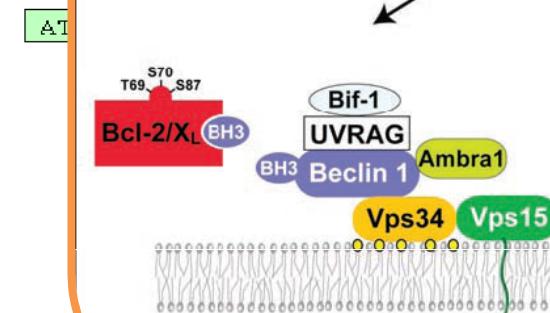
## BECLIN1 (BECN1)

- myosin-like BCL2 interacting protein
- required for the initiation of the formation of the autophagosome
- Beclin-1 interactome for the regulation of autophagy / vesicle nucleation

Tang\_H, Da\_L et al. (2009): "Hepatitis B Virus X Protein Sensitizes Cells to Starvation-Induced Autophagy via Up-regulation of Beclin 1 Expression"

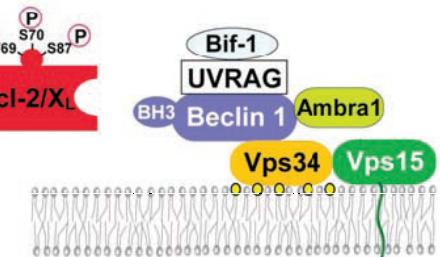


Vesicle expansion and comp



NO AUTOPHAGY

JNK activation



AUTOPHAGY

AUTOPHAGY

# Molecular switches

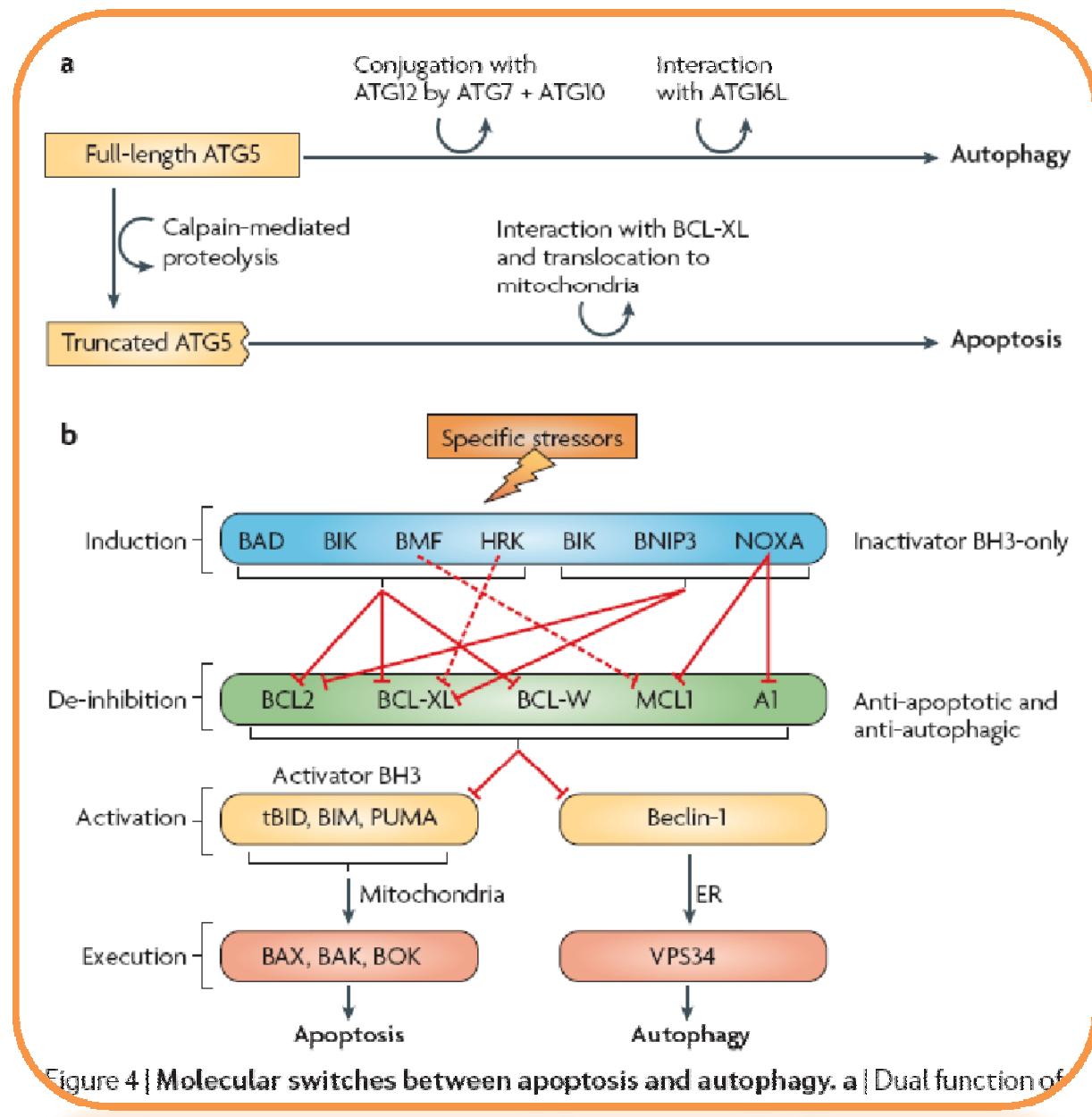


Figure 4 | Molecular switches between apoptosis and autophagy. a | Dual function of

# Molecular switches

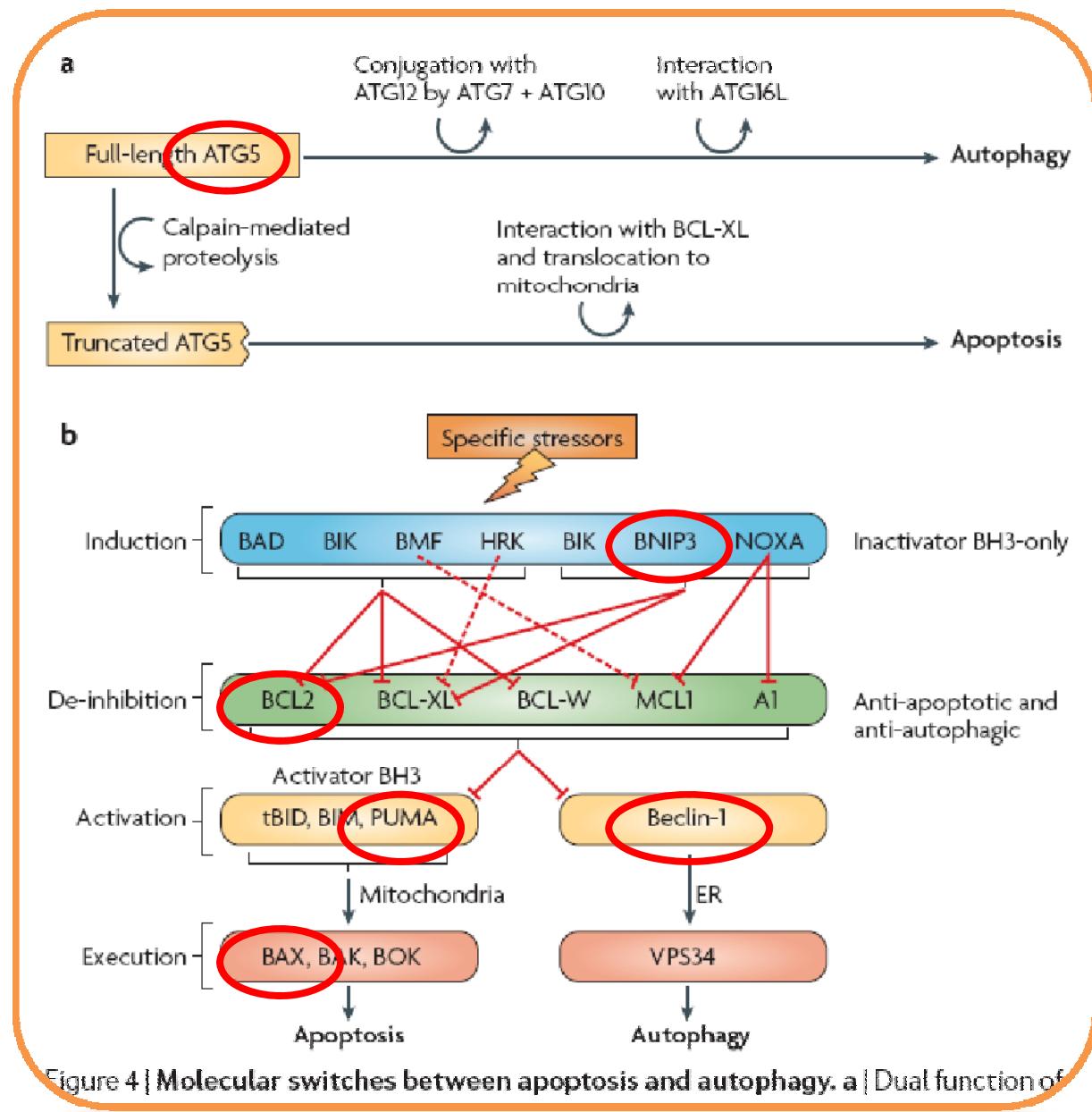


Figure 4 | Molecular switches between apoptosis and autophagy. a | Dual function of