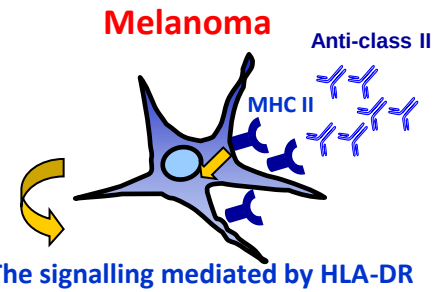
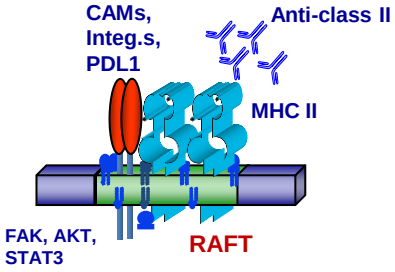
Melanoma immune escape: the role of MHC class II mediated signalling.

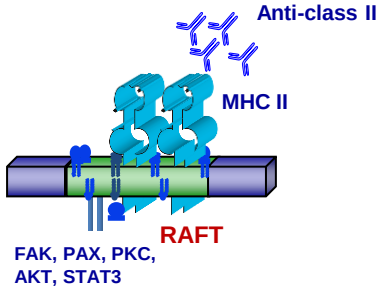


HLA-DR mediated signalling provides a platform useful to frustrate an effective anti-tumour response and to increase melanoma migration and metastatic dissemination of this cancer.

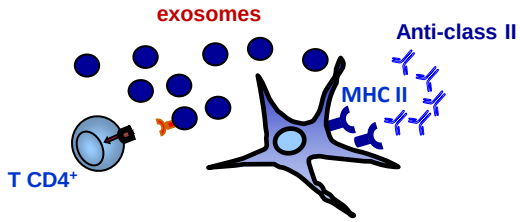
Increases the expression and the lipid rafts recruitment of adhesion receptors, PD-L1 and signalling proteins.



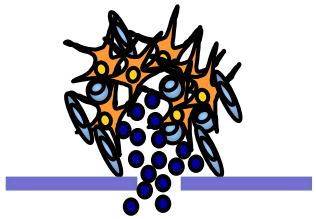
Activates several signalling pathways.



Increases the exosomes localisation of HLA-DR, of several receptors and signalling proteins.



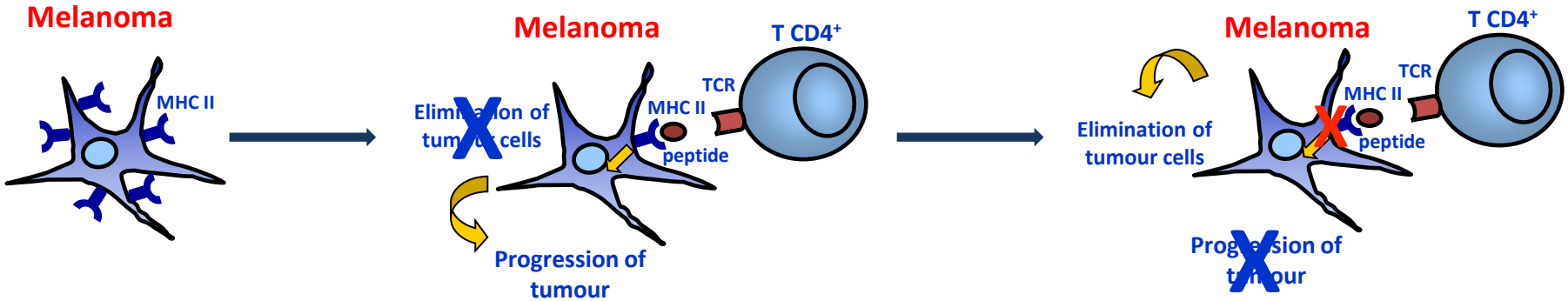
Increases cell migration and melanoma invasiveness.



F. Costantini, G. Barbieri. Cell. Sign., 36, 2017, 189-203.

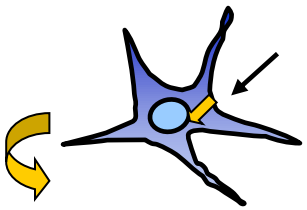
Constitutive expression of MHC class II in melanoma is associated to bad prognosis.

Targeting HLA-DR mediated signalling could inhibit melanoma progression and immune escape.

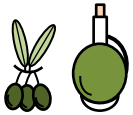


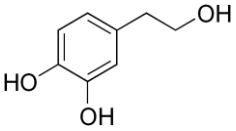
Natural and synthetic molecules to inhibit the cellular growth.

Melanoma



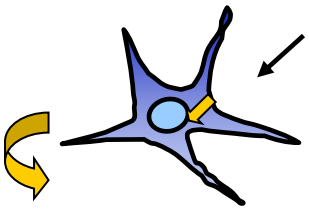
Hydroxytyrosol



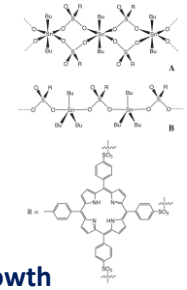


Apoptosis and increase of ROS

Melanoma



$(Bu_2Sn)_2TPPS$
$(Bu_3Sn)_4TPPS$

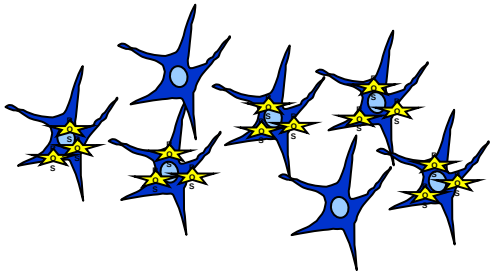


Apoptosis and slowdown of melanoma growth

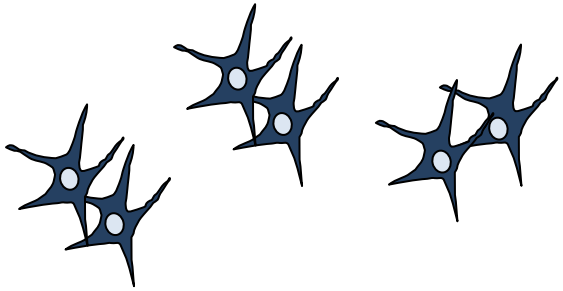
The cleavage of PARP-1 and the increased expression of γH2AX elicit the hypothesis that Hydroxytyrosol induces DNA double strand breaks damage.

$(Bu_2Sn)_2TPPS$ and $(Bu_3Sn)_4TPPS$ bypass BRAF functions, mainly targeting STAT3 signalling protein.

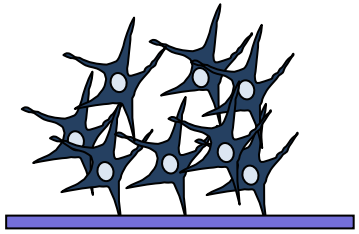
Increase of ROS amount



Inhibition of cell colony formation



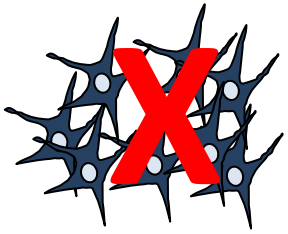
Inhibition of cell migration



F. Costantini, C. Di Sano, G. Barbieri. Int. J. Mol. Sci., 2020, 21, 8074.

F. Costantini, F. Di Leo, C. Di Sano, T. Fiore, C. Pellerito, G. Barbieri. Cells, 2019, 8, 1547.

The lack of toxicity at high concentrations, the ability to inhibit growth, proliferation and invasiveness of cancer cells, makes hydroxytyrosol a promising therapeutic option for the treatment of melanoma.



$(Bu_2Sn)_2TPPS$ and $(Bu_3Sn)_4TPPS$ for their role in the regression of the growth and melanoma migration, deeply interfere with the melanoma progression as new strategies for an effective treatment of this highly invasive tumour.