



**1st International Conference of
TWAS Young Affiliates Network**



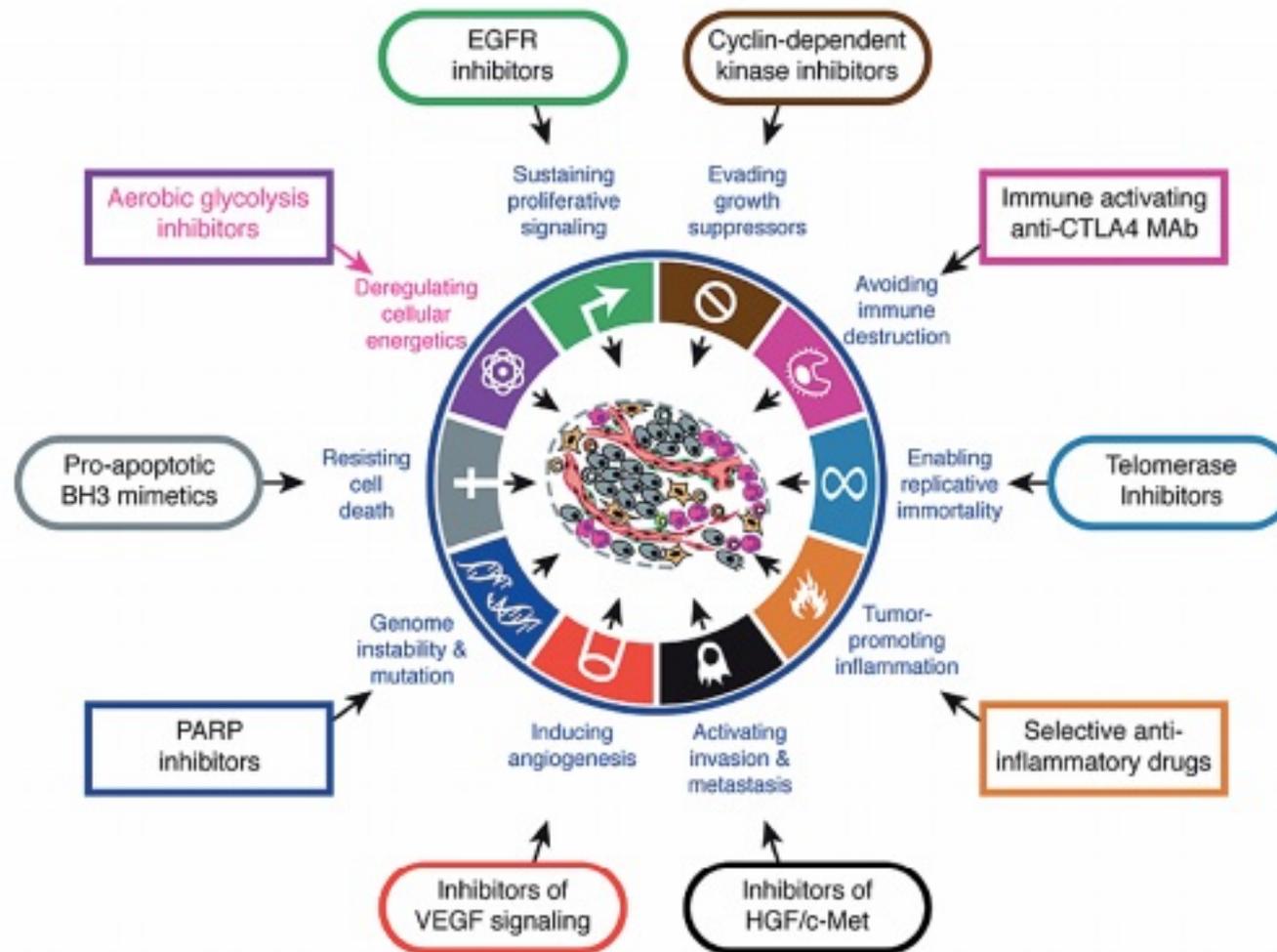
Cancer bioenergetics: novel insights on targets and drugs

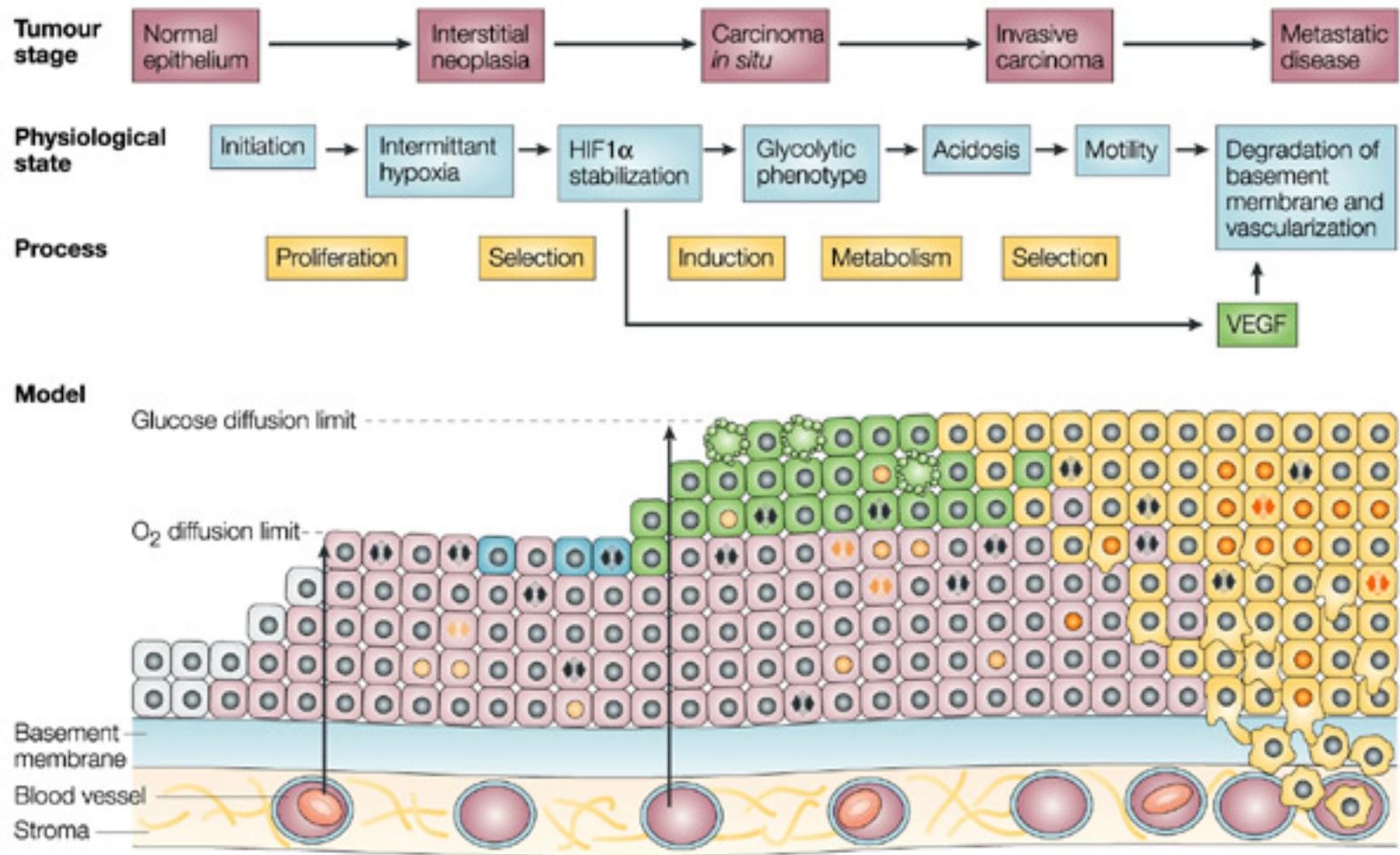


Patricia Zancan
TWAS YA
UFRJ - Brazil



Hallmarks of cancer: challenge to new targets and drugs





Projects in progress at the LabOMol:

1. ER stress as melanoma antitumoral mechanism of action of Salicylates;
2. Evaluation of the role of citrate as an inducer of non-alcoholic fatty liver disease, non-alcoholic inflammatory steatohepatitis and hepatocellular carcinoma;
3. *Ocimum basilicum* but not *Ocimum gratissimum* present cytotoxic effects on human breast cancer cell line MCF-7, inducing apoptosis and triggering mTOR/Akt/p70S6K pathway;
4. Designing 1H-1,2,3-Triazole-Tethered-6H-Dibenzo[b,h]xanthenes as Inductors of ROS-Mediated Apoptosis in the Breast Cancer Cell Line MCF-7;
5. 5-HT reverts the Warburg effect in breast cancer cells;
6. Clotrimazole actions on energetic metabolism and inflammation in diverse *in vitro* and *in vivo* tumoral models;



Clotrimazole inhibits and modulates heterologous association of the key glycolytic enzyme 6-phosphofructo-1-kinase

Patricia Zancan, Alicia O. Rosas, Mariah C. Marcondes, Monica M. Marinho-Carvalho, Mauro Sola-Penna*

Laboratório de Enzimologia e Controle do Metabolismo (LabECoM), Departamento de Fármacos, Faculdade de Farmácia, Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ 21941-590, Brazil

IUBMB *Life*, 63(6): 435–445, June 2011

Research Communication

Muscle-Type 6-Phosphofructo-1-kinase and Aldolase Associate Conferring Catalytic Advantages for Both Enzymes

Mariah Celestino Marcondes, Mauro Sola-Penna, Renan da Silva Gianoti Torres, and Patricia Zancan

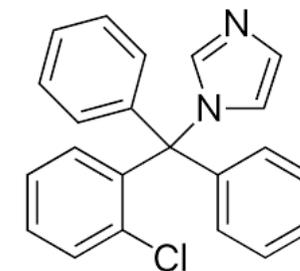
Laboratório de Oncobiologia Molecular (LabOMol) and Laboratório de Enzimologia e Controle do Metabolismo (LabECoM), Departamento de Fármacos, Faculdade de Farmácia, Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, Brazil

The International Journal of Biochemistry & Cell Biology 62 (2015) 132–141



Phosphatidylinositol-3-kinase as a putative target for anticancer action of clotrimazole

Cristiane M. Furtado^{a,b,1}, Mariah C. Marcondes^{a,1}, Renato S. Carvalho^a, Mauro Sola-Penna^c, Patricia Zancan^{a,*}



OPEN ACCESS Freely available online



Clotrimazole Preferentially Inhibits Human Breast Cancer Cell Proliferation, Viability and Glycolysis

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RESEARCH ARTICLE

Nanomicellar Formulation of Clotrimazole Improves Its Antitumor Action toward Human Breast Cancer Cells

Mariah C. Marcondes¹, Anne C. S. Fernandes², Ivaldo Itabaiana, Jr.³, Rodrigo O. M. A. de Souza³, Mauro Sola-Penna⁴, Patricia Zancan^{1,*}

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Archives of Biochemistry and Biophysics 497 (2010) 62–67



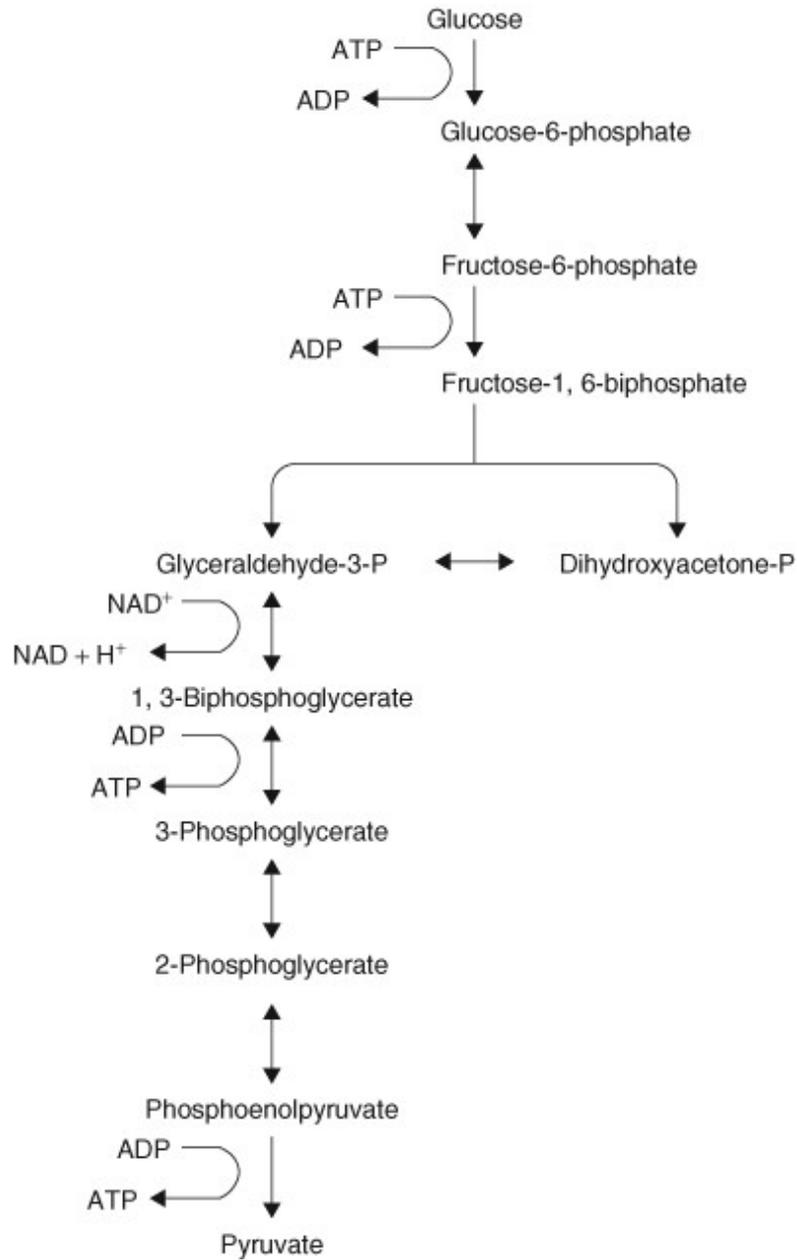
Original paper

Clotrimazole potentiates the inhibitory effects of ATP on the key glycolytic enzyme 6-phosphofructo-1-kinase

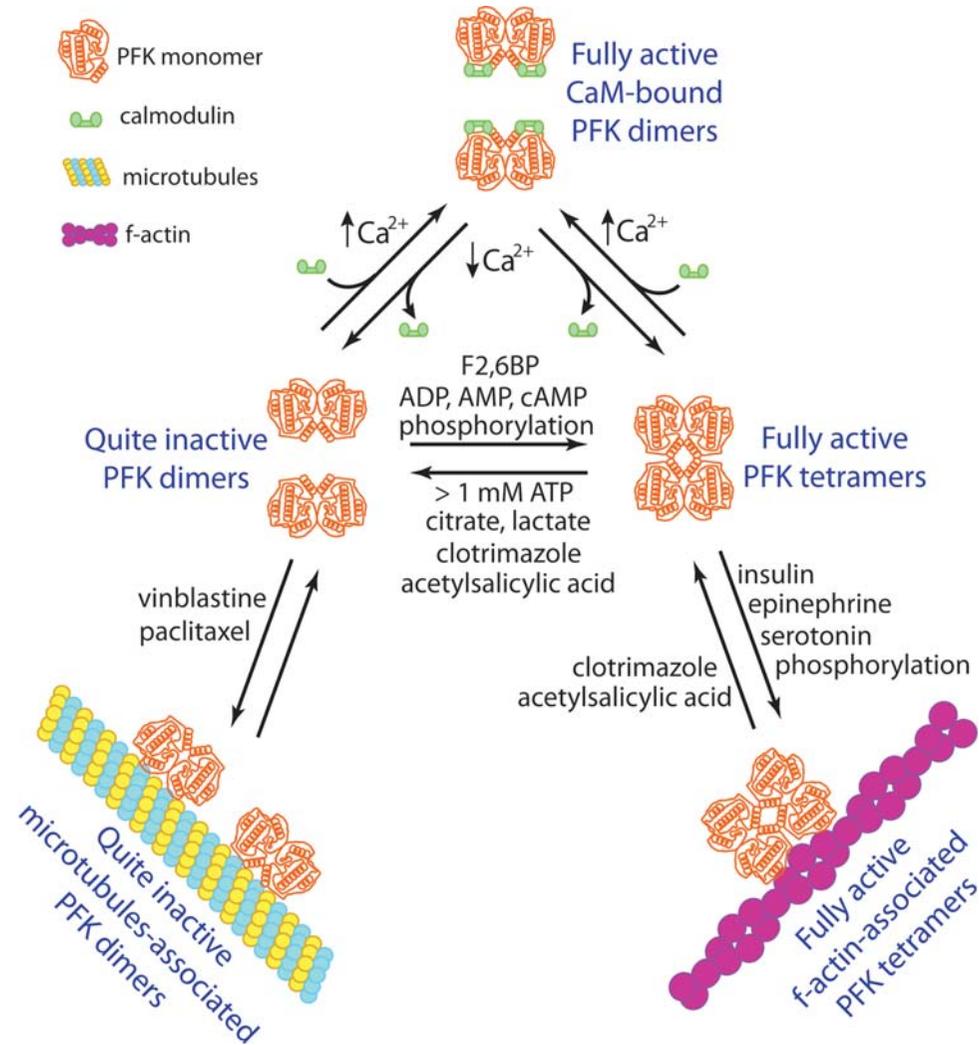
Mariah Celestino Marcondes, Mauro Sola-Penna, Patricia Zancan*

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Glycolysis

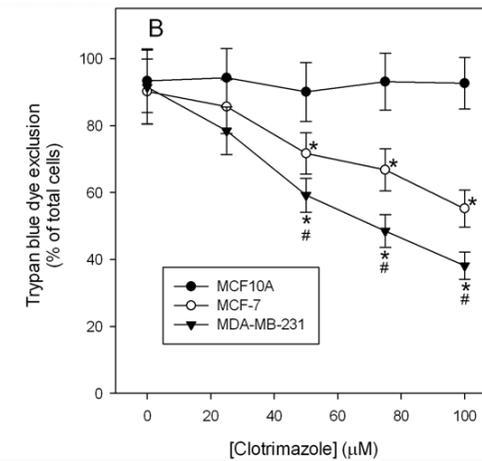
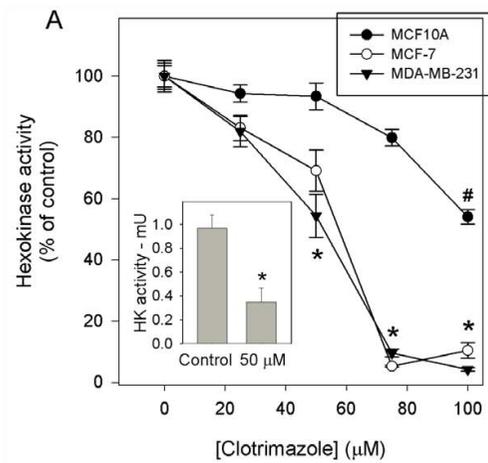
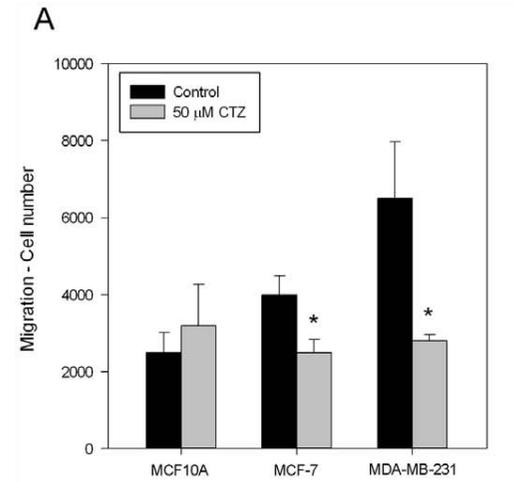
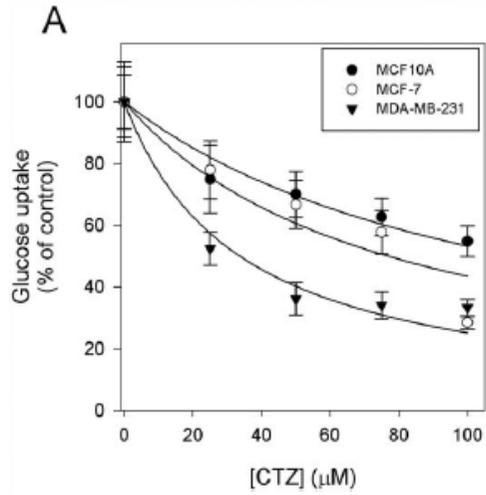


Phosphofructokinase (PFK)

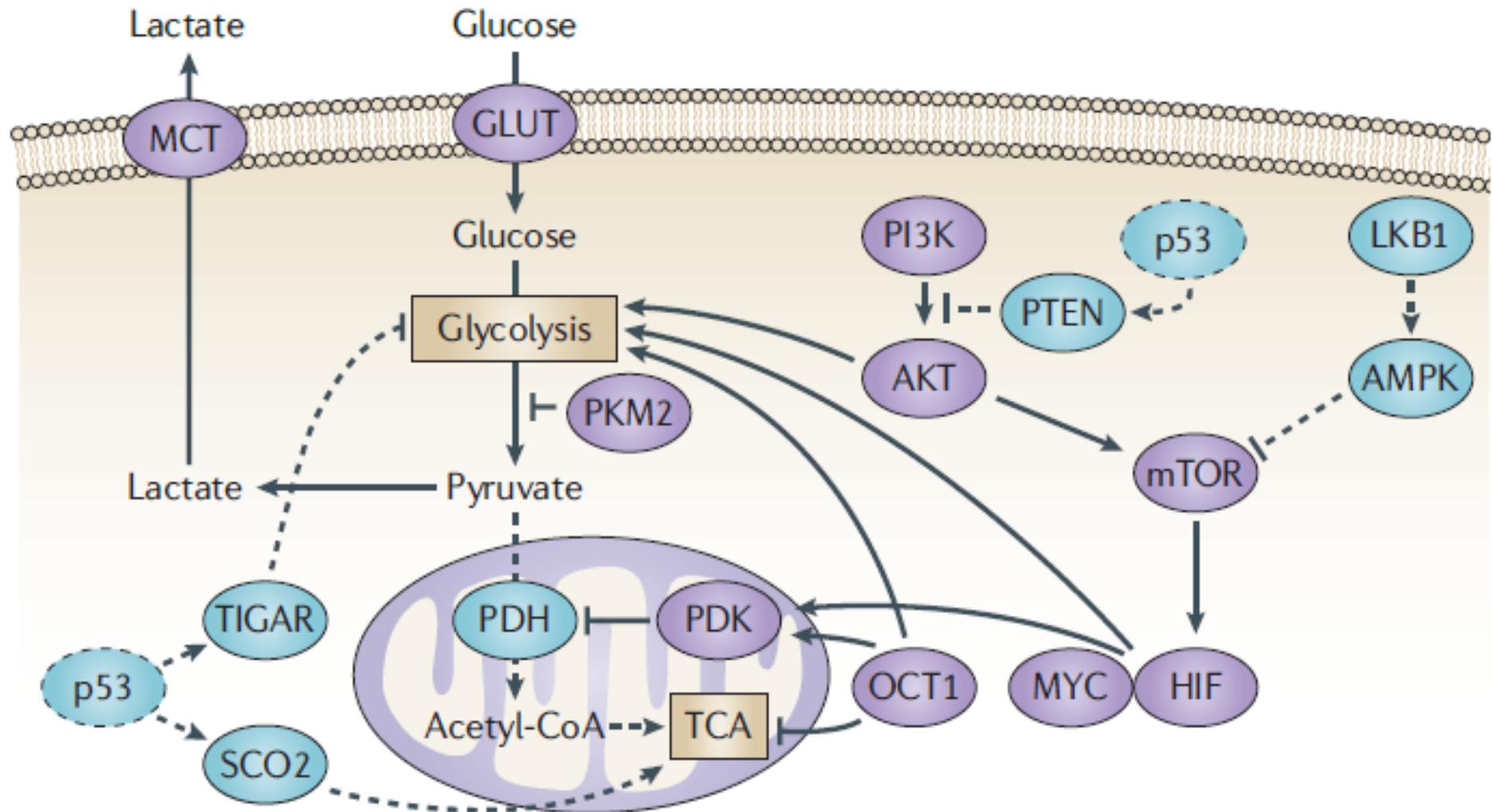


Sola-Penna *et al.*, 2011

Selective effects of Clotrimazole on breast cancer cell lines



b Proliferating tumour cell

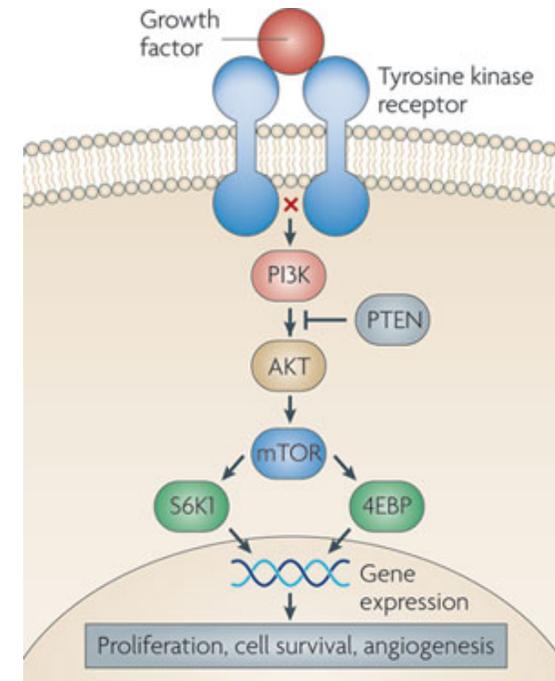
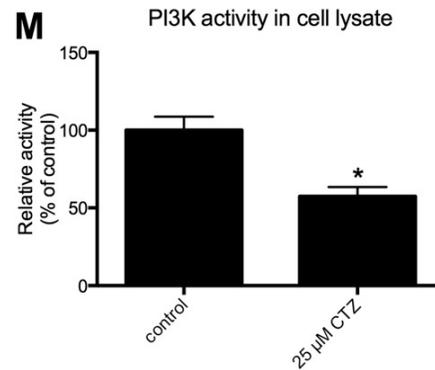
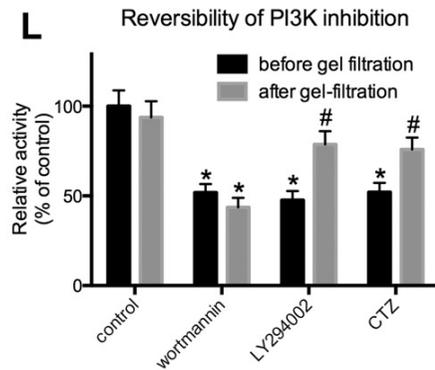
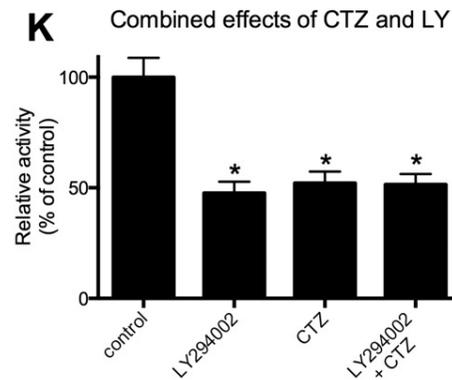
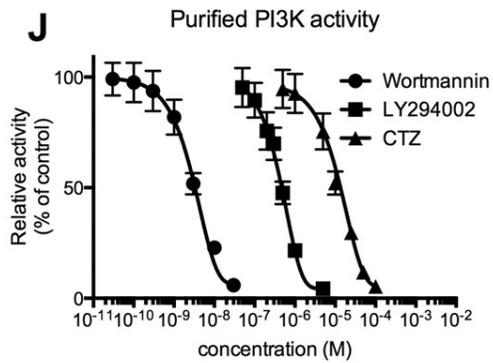


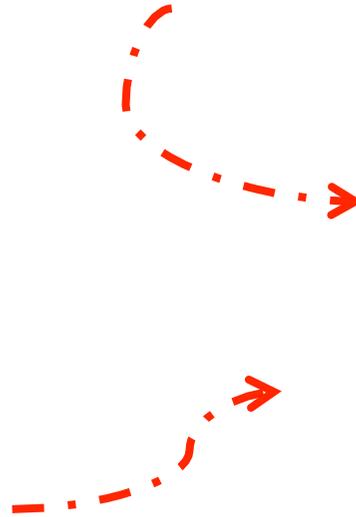
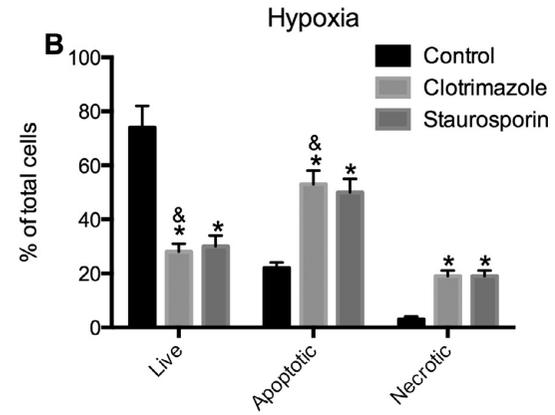
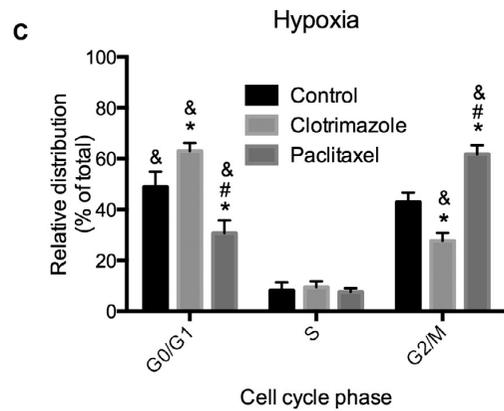
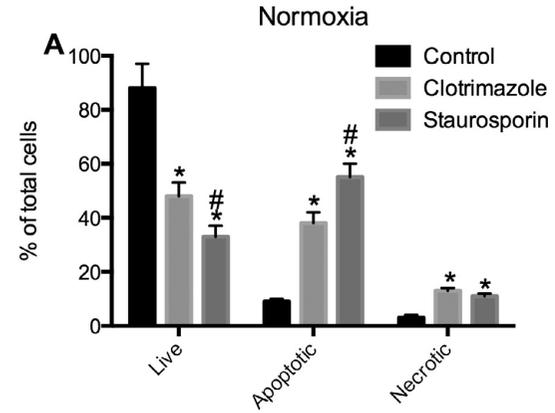
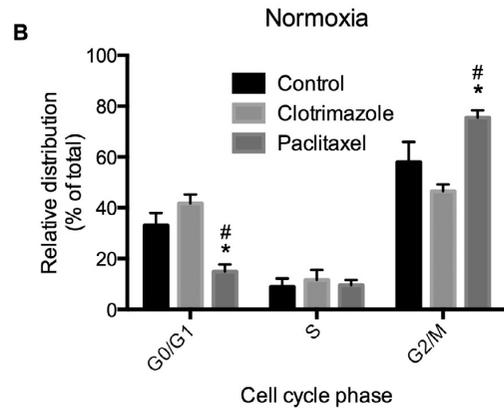
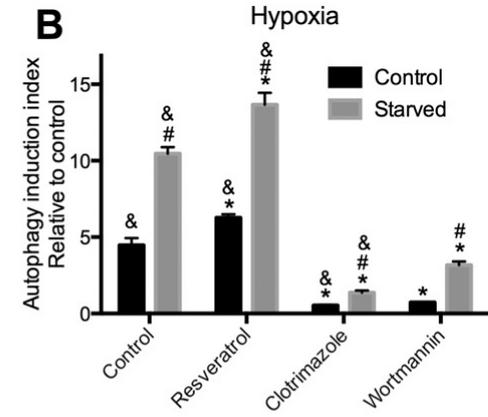
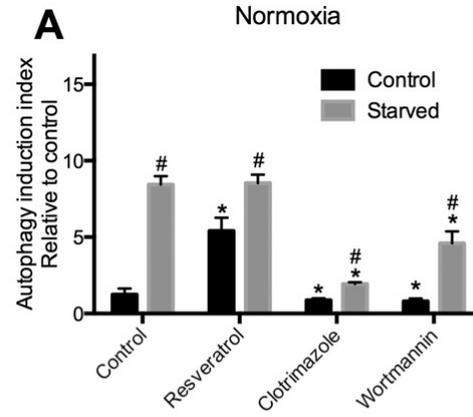
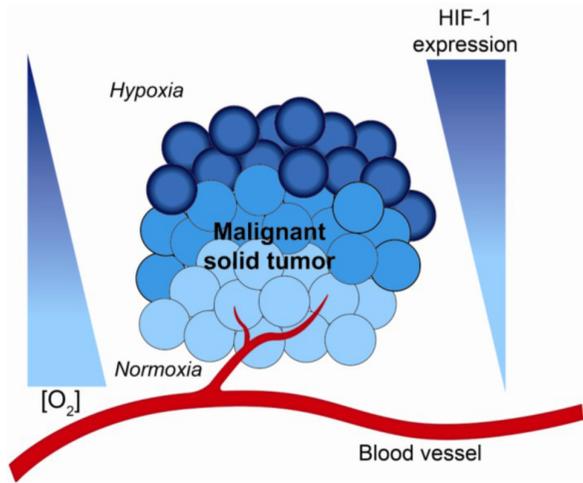


Phosphatidylinositol-3-kinase as a putative target for anticancer action of clotrimazole



Cristiane M. Furtado^{a,b,1}, Mariah C. Marcondes^{a,1}, Renato S. Carvalho^a, Mauro Sola-Penna^c, Patricia Zancan^{a,*}

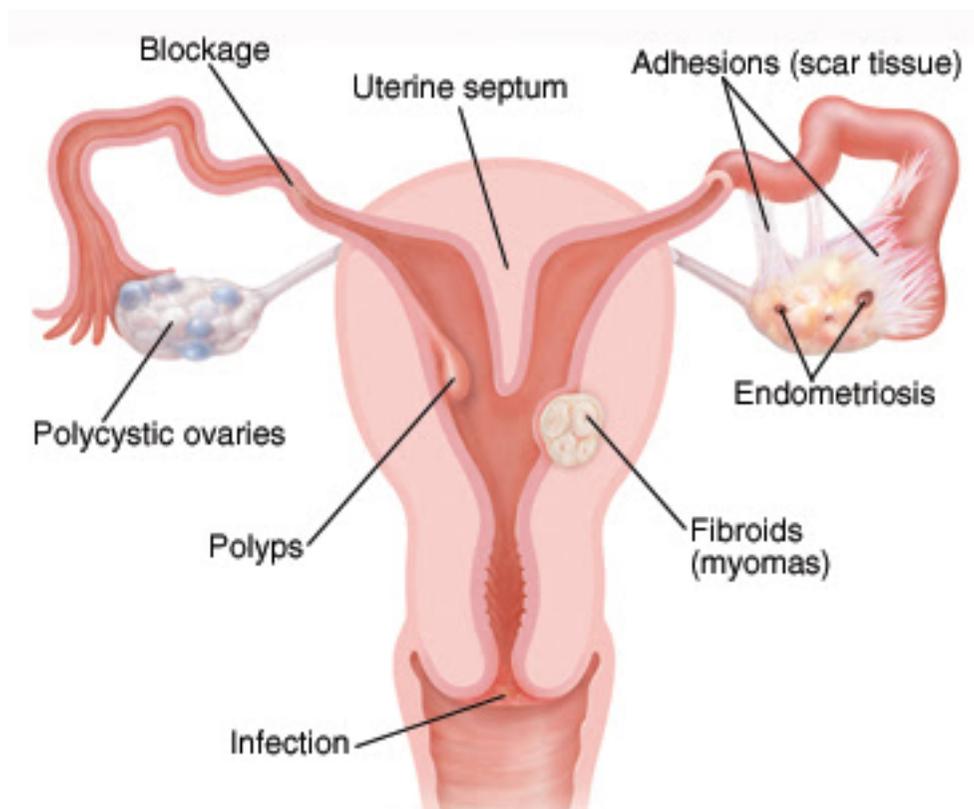


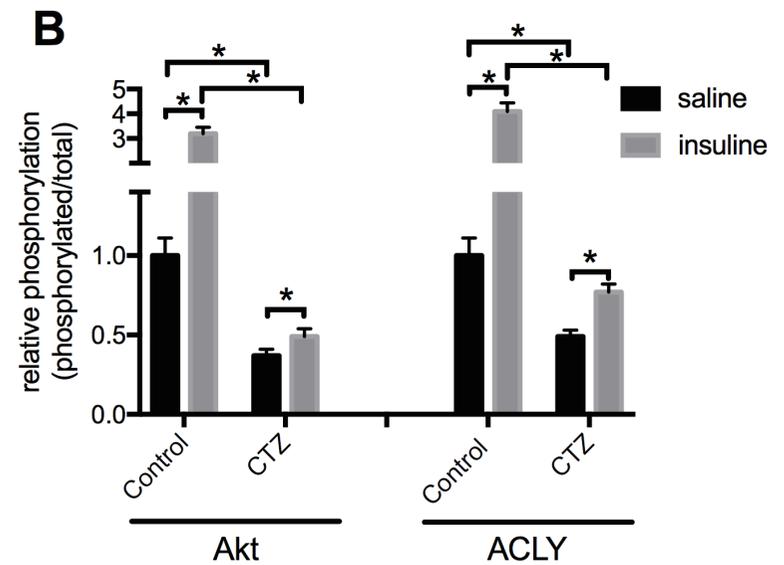
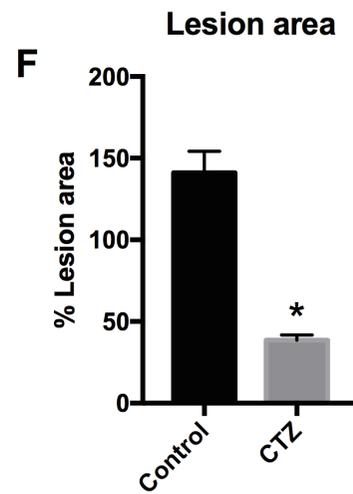
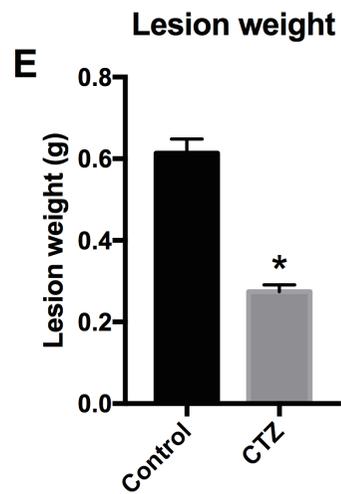
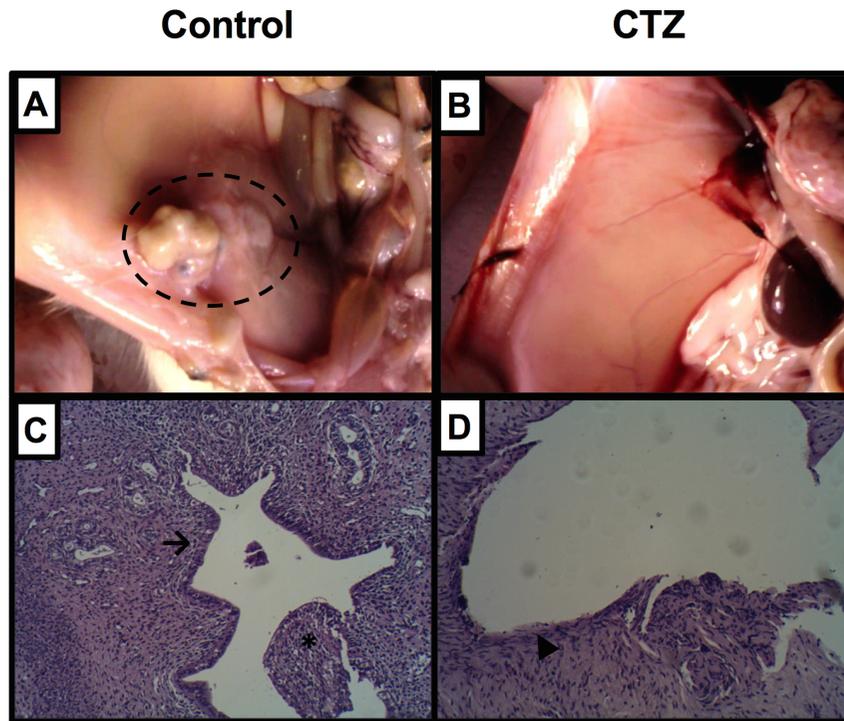


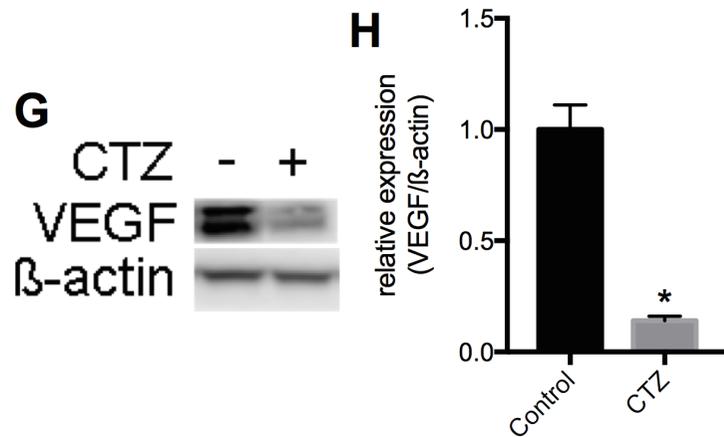
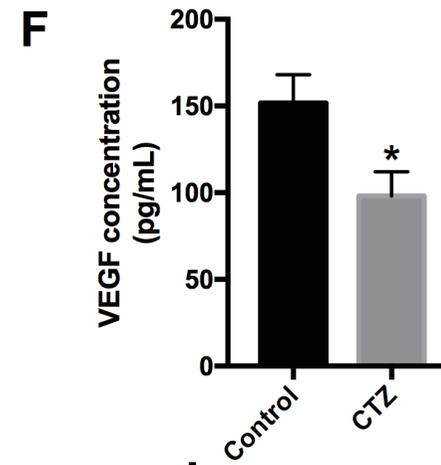
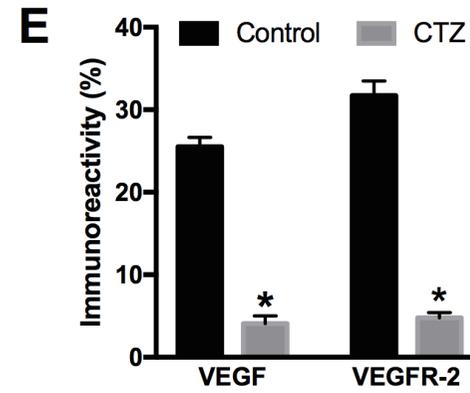
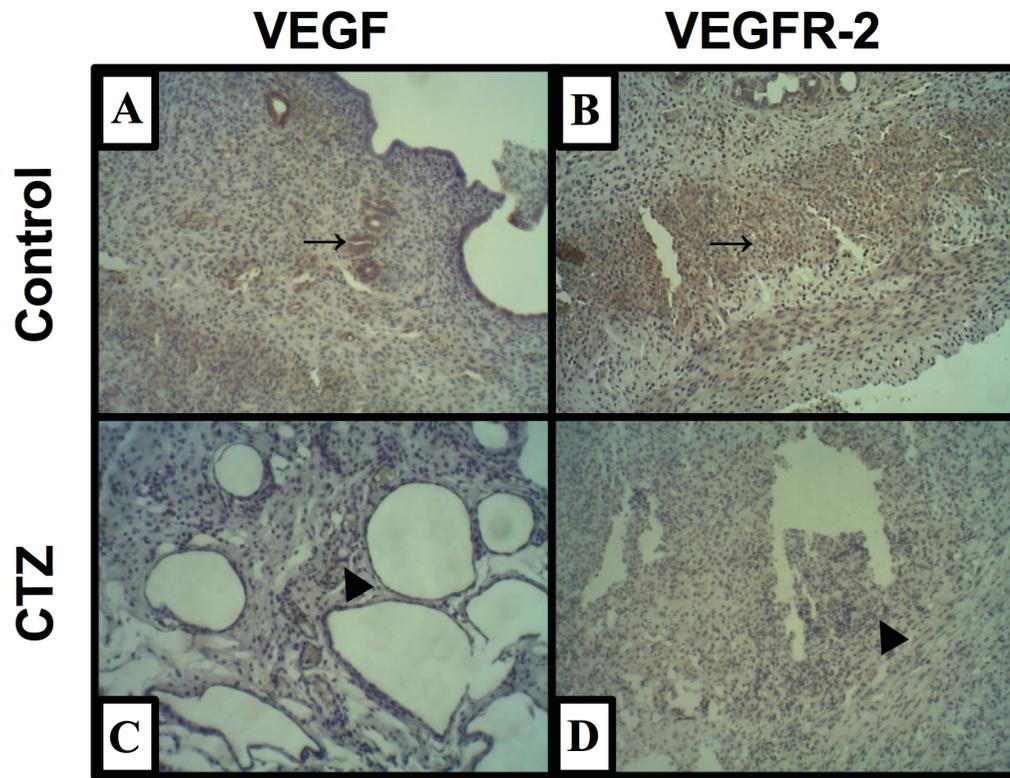
E545K mutation at the PIK3CA gene could explain the selective effect of CTZ?

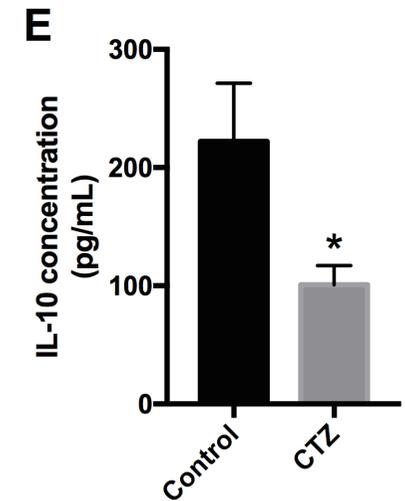
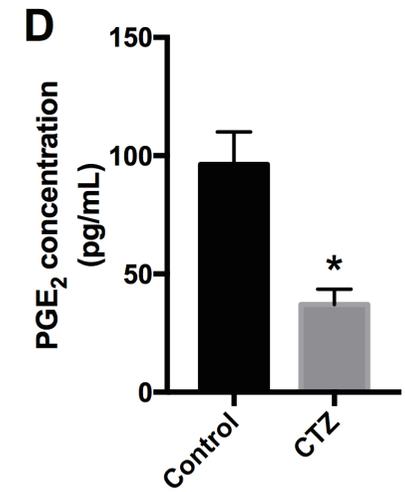
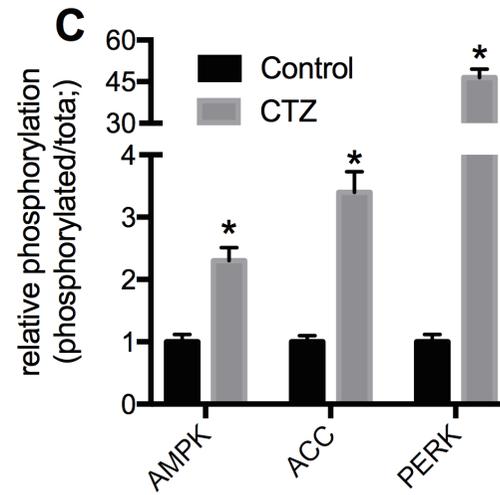
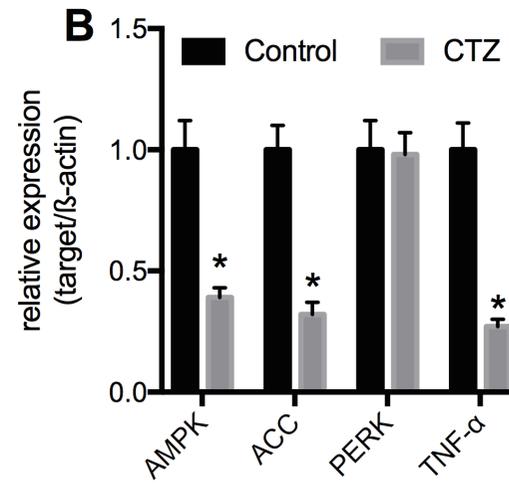
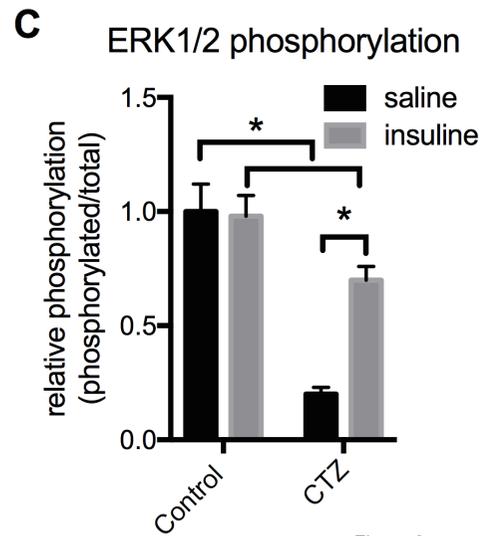
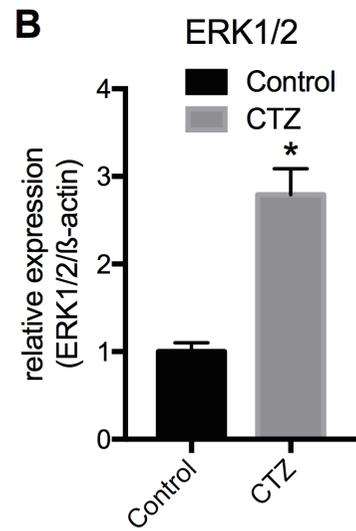
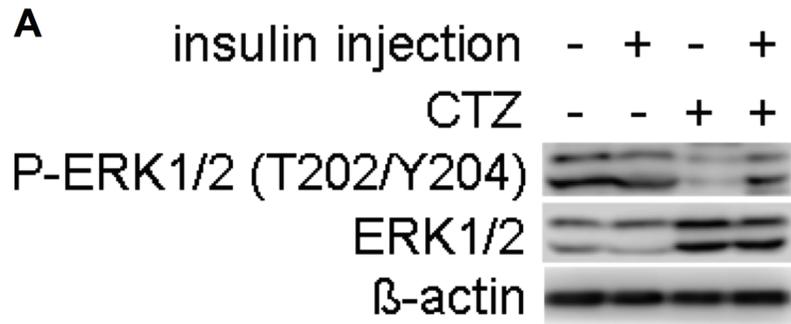
	<i>Cell line</i>	<i>PIK3CA transcript</i>	<i>PIK3CA amino acid</i>
1	AU565		
2	BT20	3140A>G, 1616C>G	H1047R, P539R
3	BT474	333G>C	K111N
4	BT483	1624G>A	E542K
5	BT549		
6	CAMA1		
7	HCC1187		
8	HCC1395		
9	HCC1419		
10	HCC1428		
11	HCC1500	3075C>T	T1025T
12	HCC1569		
13	HCC1806		
14	HCC1937		
15	HCC1954	3140A>G	H1047R
16	HCC202	1633G>A	E545K
17	HCC38		
18	HCC70		
19	HS578T		
20	MCF7	1633G>A	E545K
21	MDA-MB-157		

Clotrimazole is effective for the regression of endometriosis

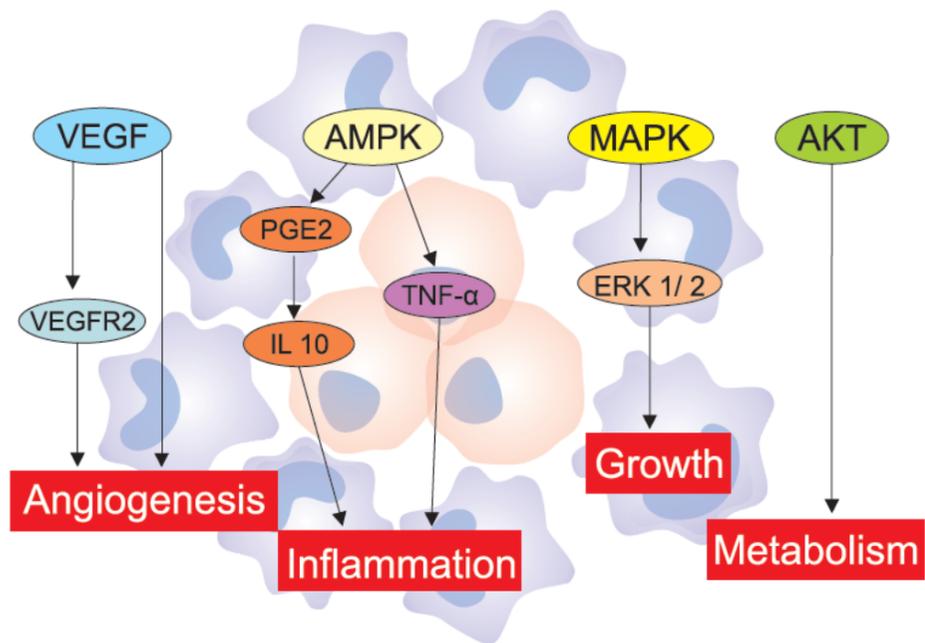




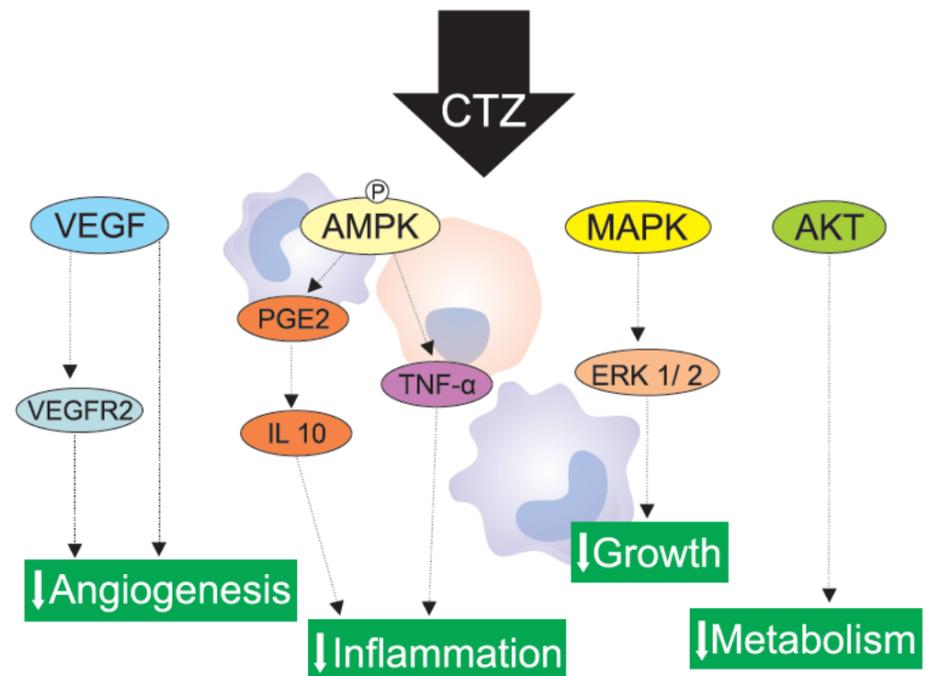




ENDOMETRIOTIC ENVIRONMENT



ENDOMETRIOTIC ENVIRONMENT





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Thanks to:

