

Master degree
Pasture institute Of Iran



Tehran, Iran

PhD & post-doc at research program for receptor
biochemistry and tumor metabolism

Salzburg University Hospital, Austria. 02.2013 – 12.2022



Salzburg, Austria

Post-doc at research program for the European
translational oncology prevention & screening

University of Innsbruck. 04.2021 – 12.2022



Innsbruck, Austria

Post-doc at PIZ
DESY 03.2024



Zeuthen, Germany

Sepideh Aminzadeh-Gohari,
PhD in molecular biology



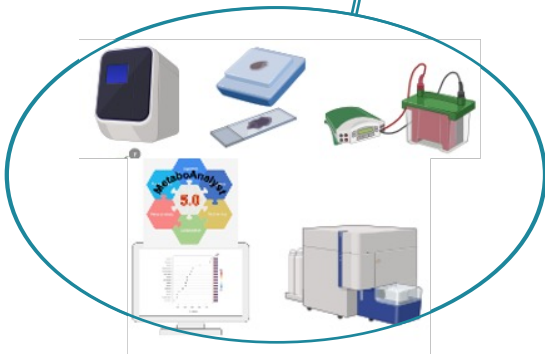


Characterizing metabolic features in cancer cells



Targeting cancer cells via metabolic manipulation

- Dietary interventions



Detection of therapy mechanisms

PhD

8 Publications
(Three 1st author Papers)

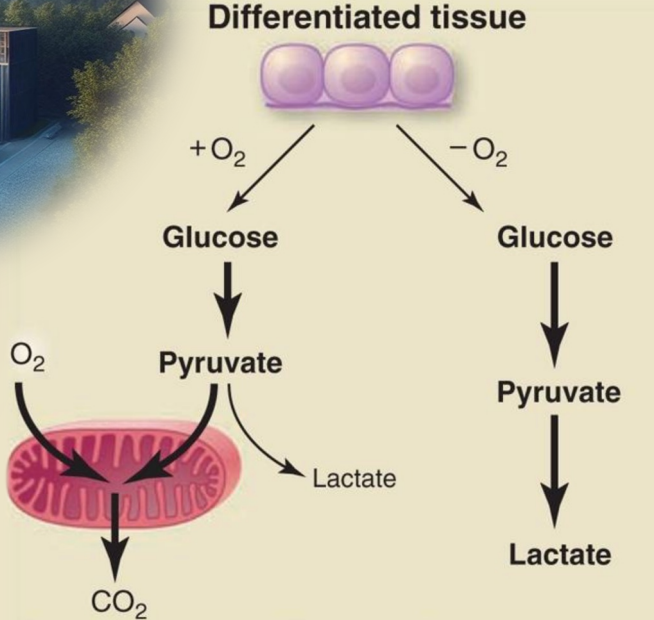
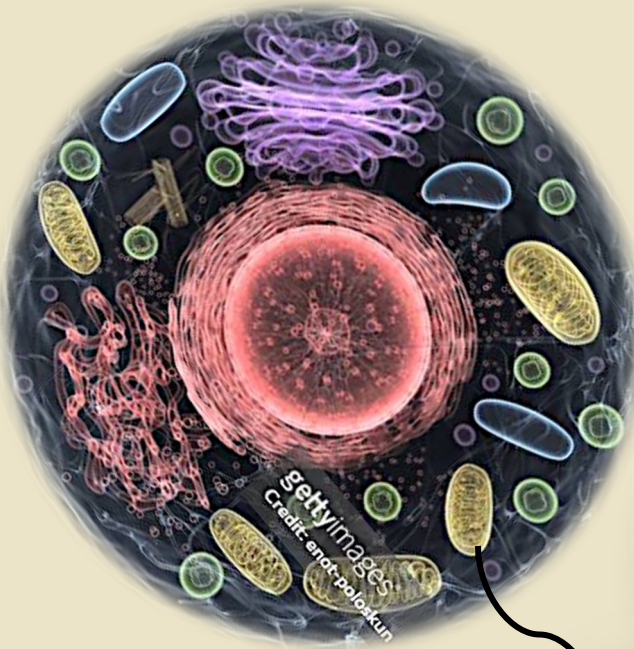
1st postdoc

12 publications & a grant
(Five 1st author Papers)

2nd postdoc

4 publications
(published, under review,
planned)
(Two 1st author Papers)

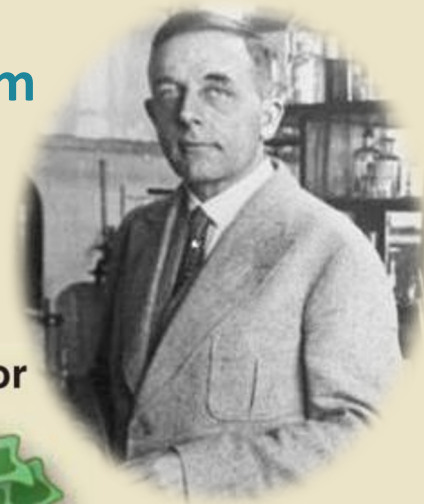
Mitochondria are like tiny powerhouses inside our cells.



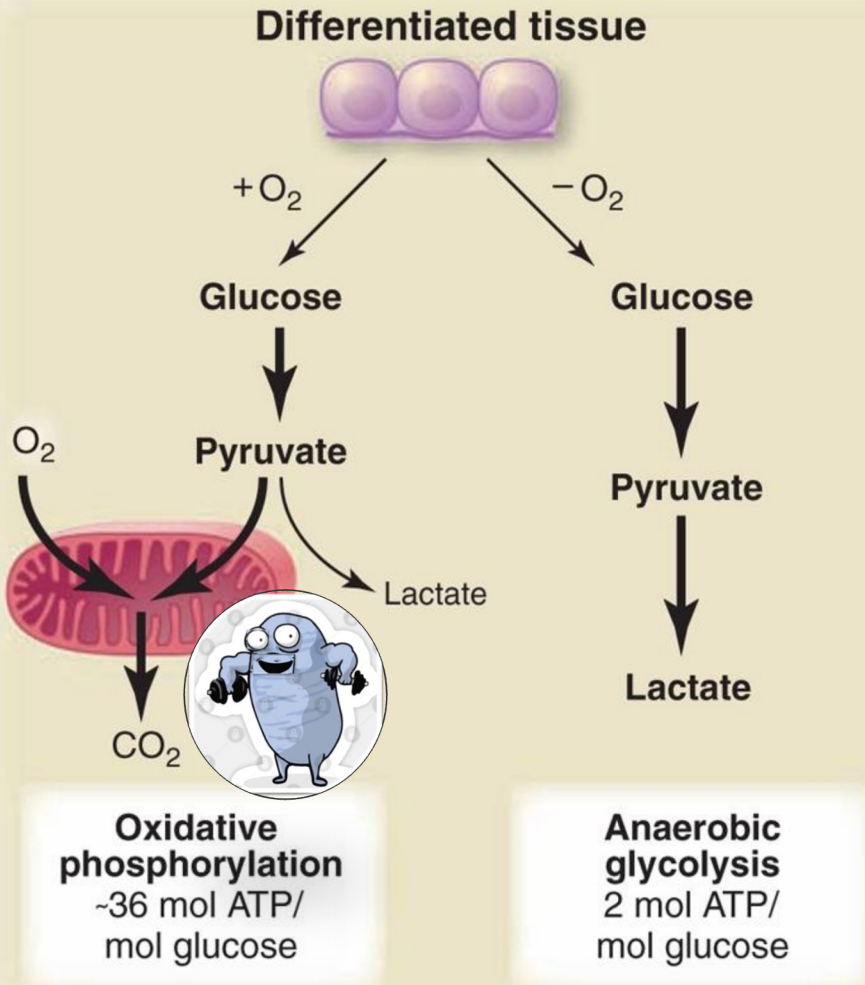
Oxidative phosphorylation
~36 mol ATP/
mol glucose

Anaerobic glycolysis
2 mol ATP/
mol glucose

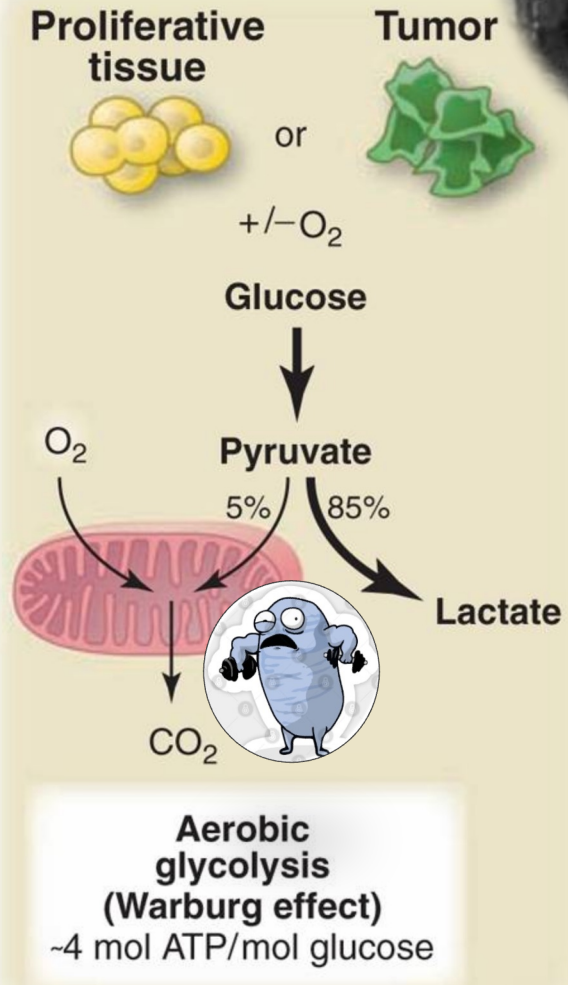
The Warburg effect: a key discovery in cancer metabolism



Non-cancer cells

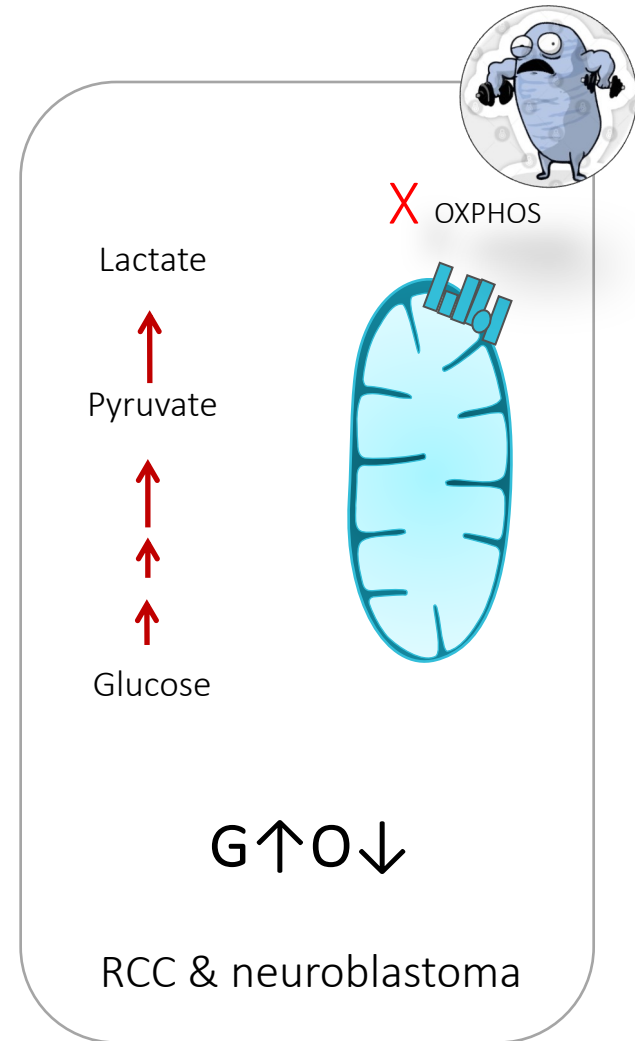
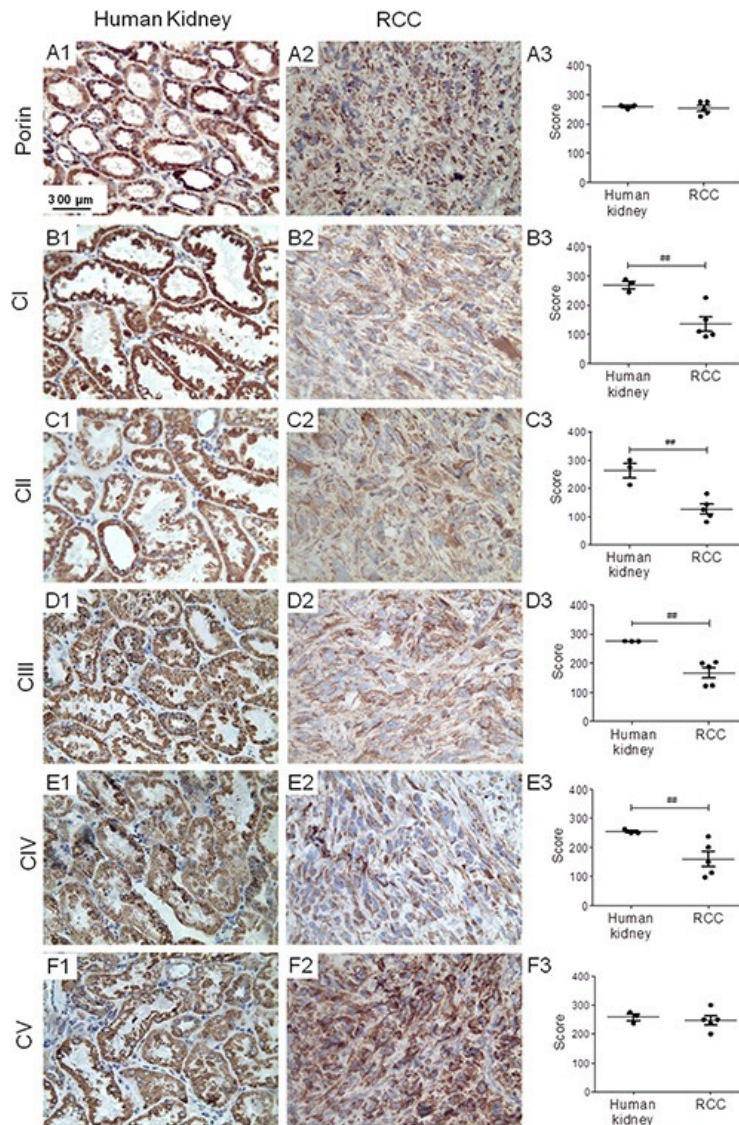


Cancer cells



The Warburg effect and varied OXPHOS levels in cancer cells

Increased glycolysis values combined with OXPHOS deficiencies



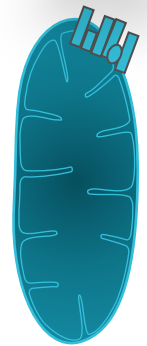
Vidali, Aminzadeh et al. Oncotarget. 2017
 Aminzadeh et al. Transl Pediatr. 2015

The Warburg effect and varied OXPHOS levels in cancer cells

elevated levels of glycolysis and functional OXPHOS



OXPHOS



Lactate



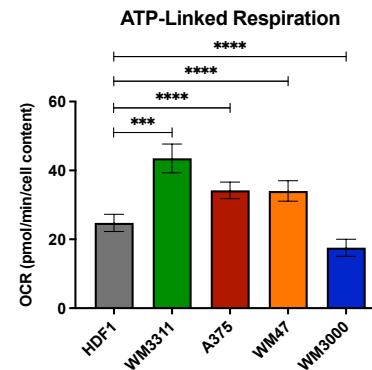
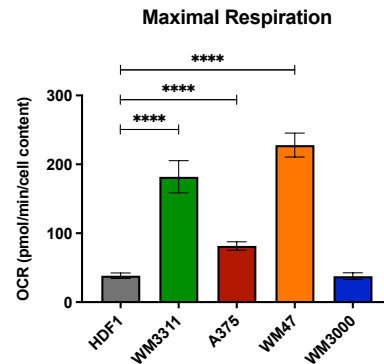
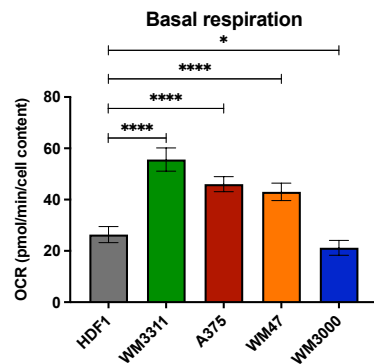
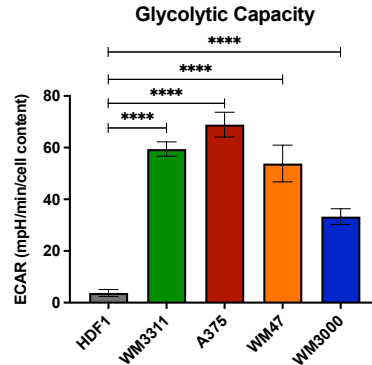
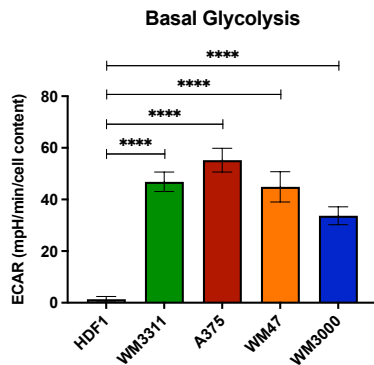
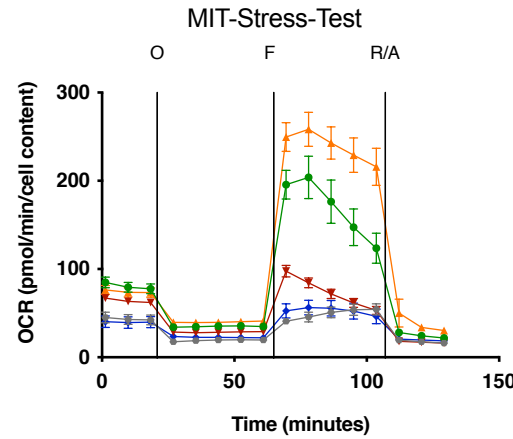
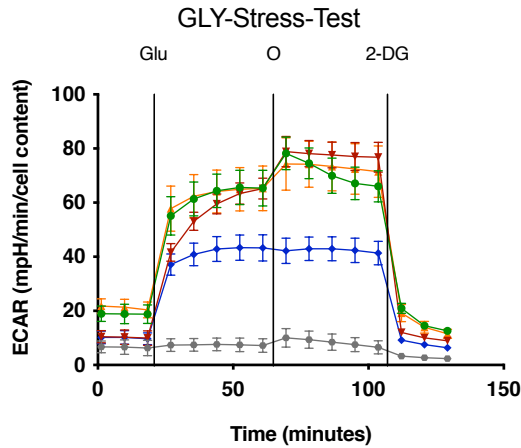
Pyruvate



Glucose

G↑O↑

many types of cancers
like melanoma, breast
cancer, etc.



Aminzadeh-Gohari S. et al. Biomolecules. 2020

Dietary interventions as an adjuvant cancer therapy

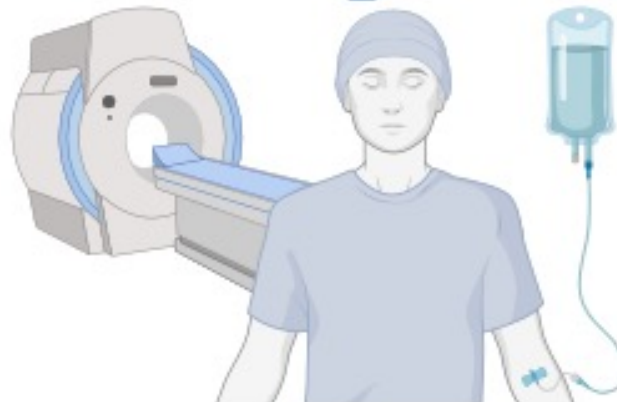
Intermittent fasting



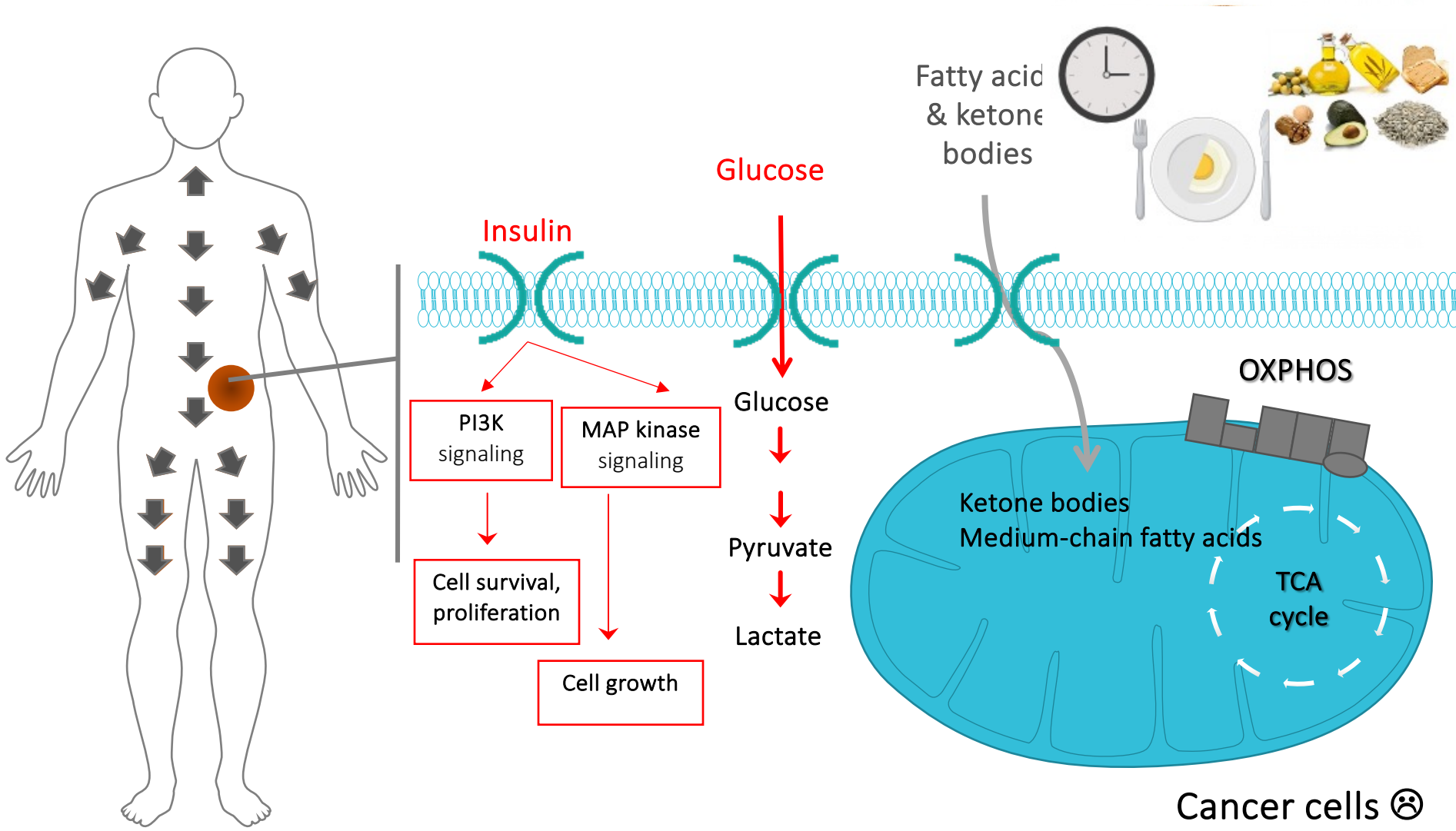
caloric restriction



Ketogenic diet
(a high fat, low carbohydrate diet)

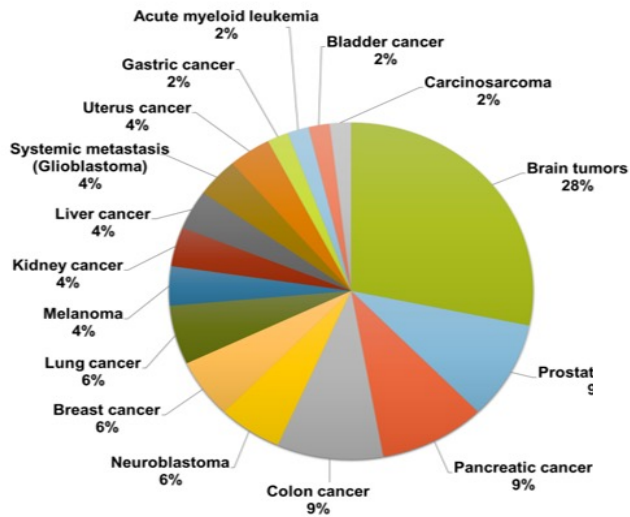


How a ketogenic diet can target Warburg effect in cancer cells?

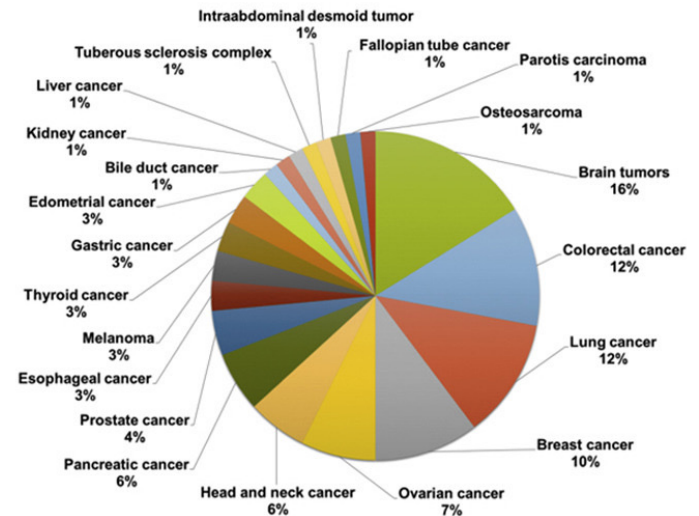


Ketogenic diet as an adjuvant cancer therapy

Preclinical studies

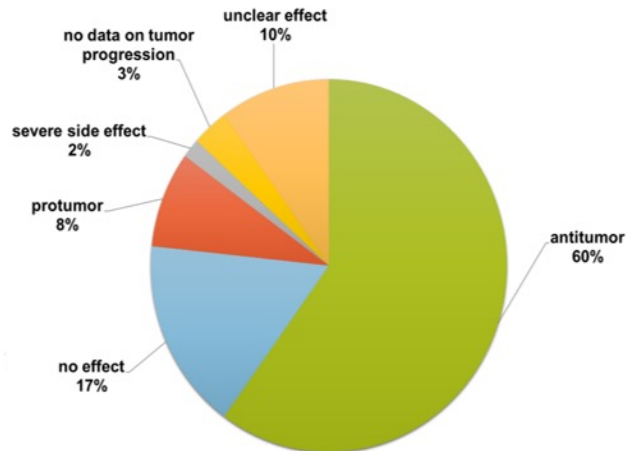


Clinical studies



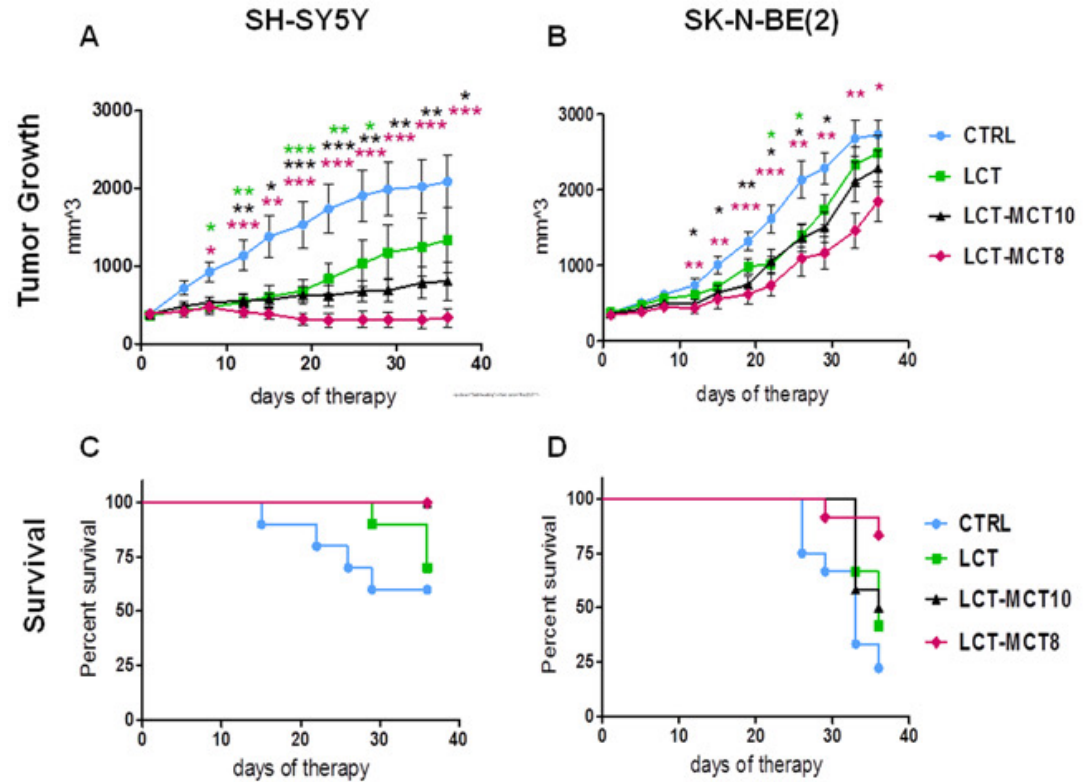
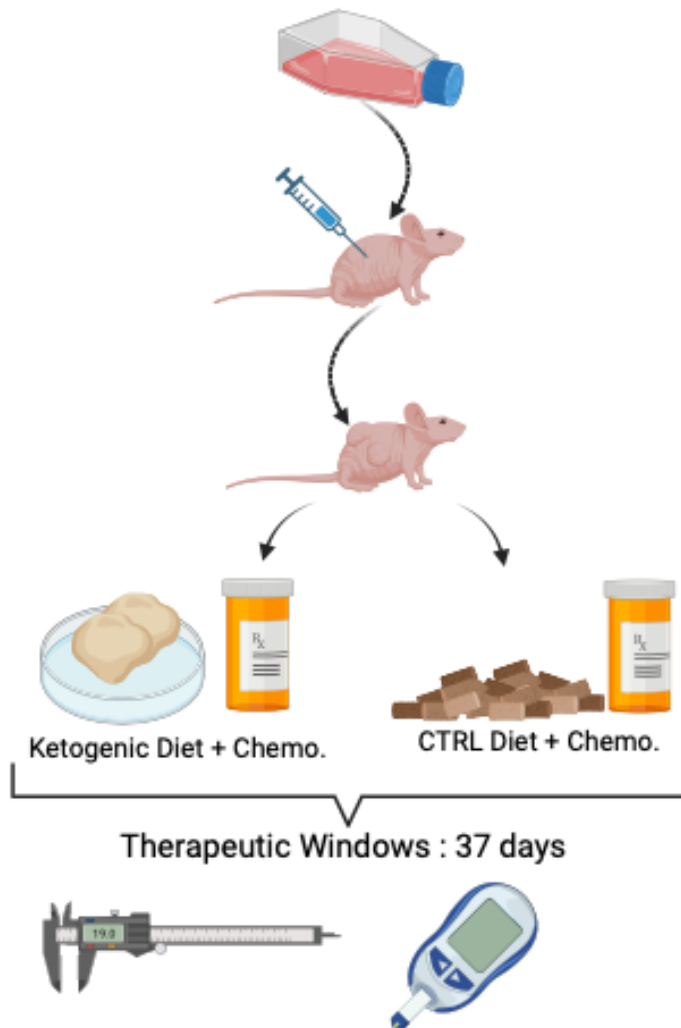
Proposed effect on tumor cells

Renal cell carcinoma



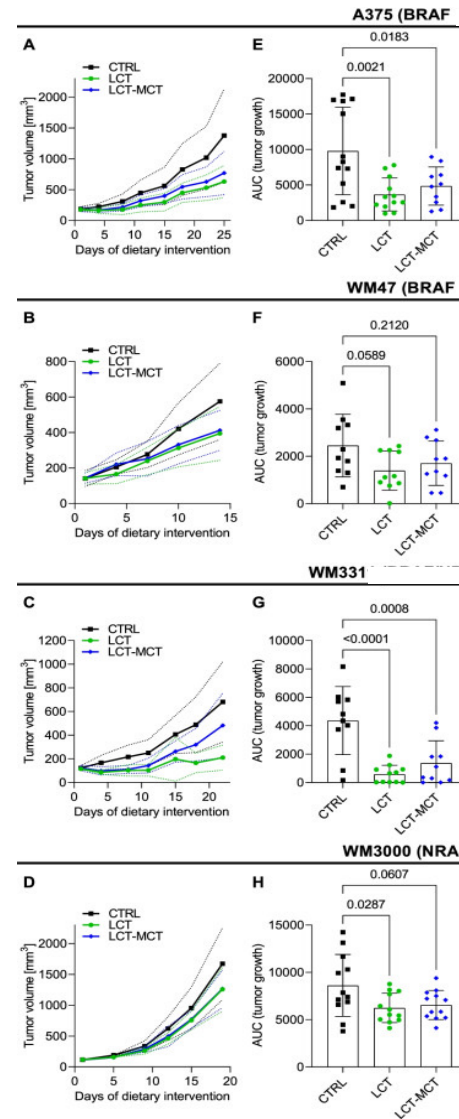
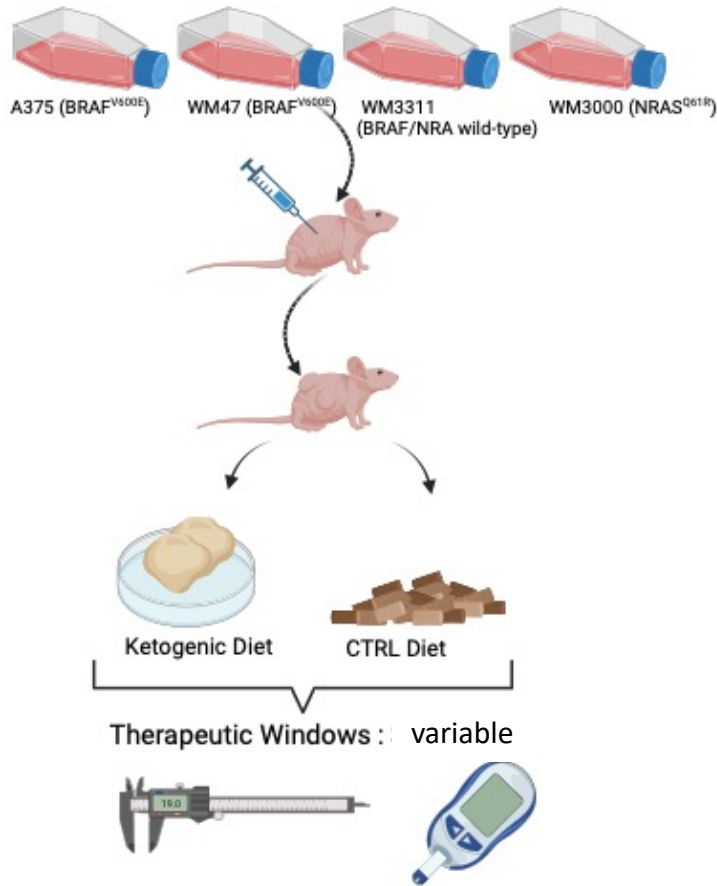
Neuroblastoma
Melanoma
Breast cancer

Ketogenic diets sensitized Neuroblastoma to chemotherapy



Aminzadeh-Gohari et al. Oncotarget. 2017

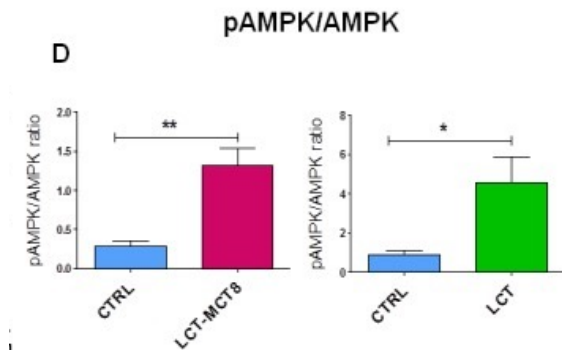
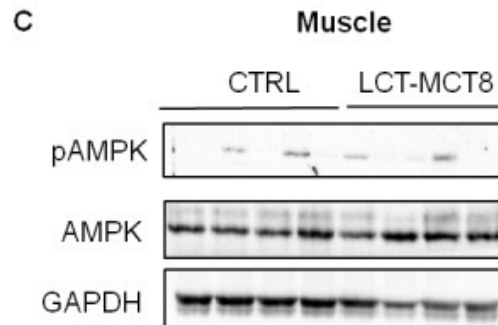
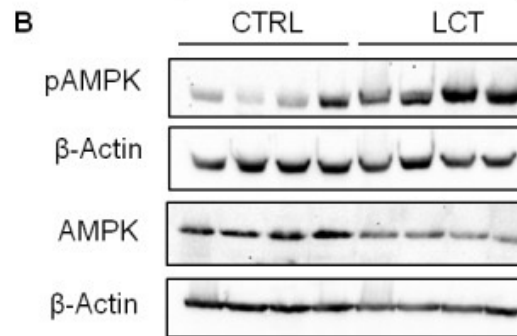
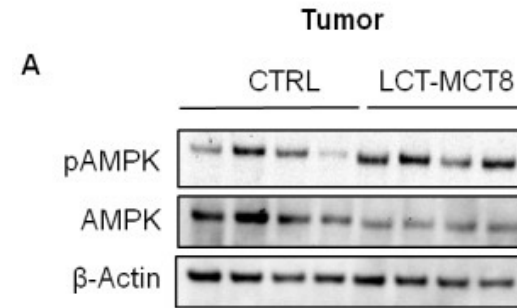
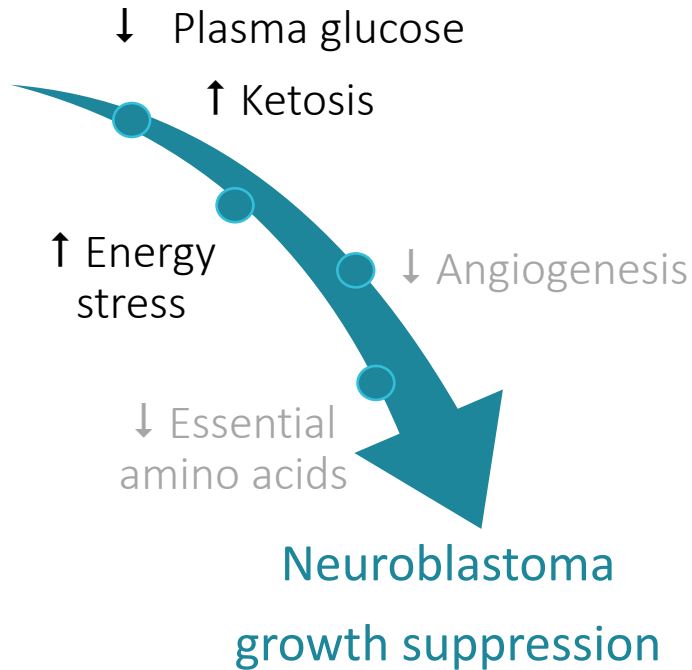
Ketogenic diets slowed melanoma growth regardless of tumor genetics



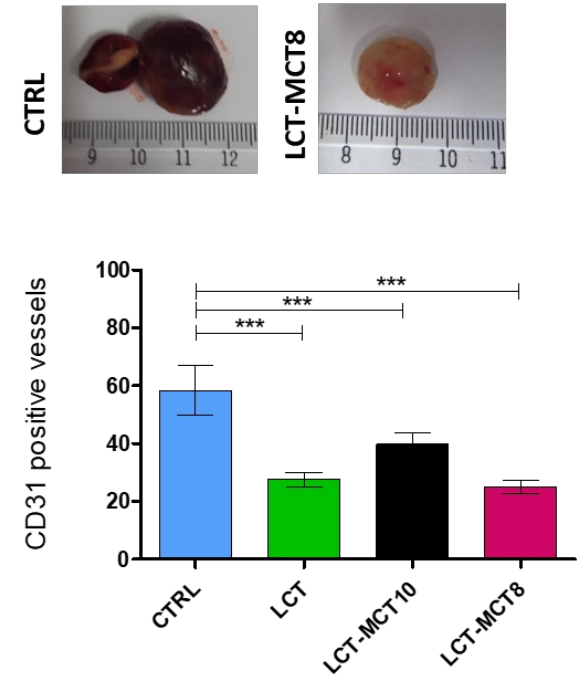
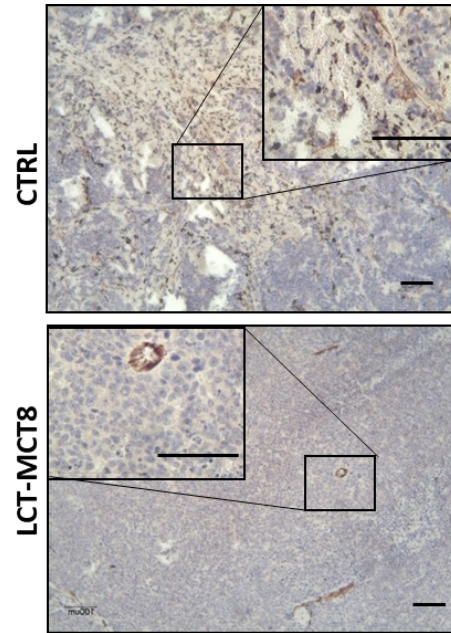
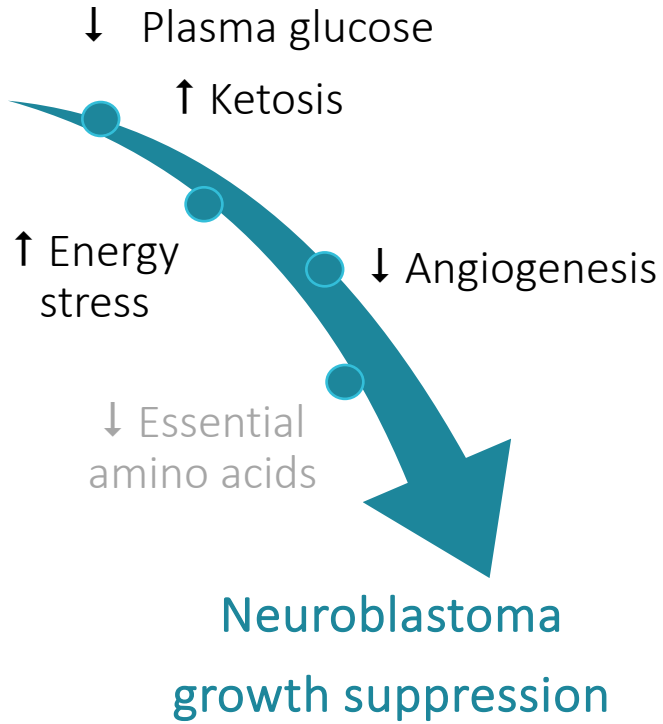
Brief overview of the mechanisms of the ketogenic diet as adjuvant cancer therapy



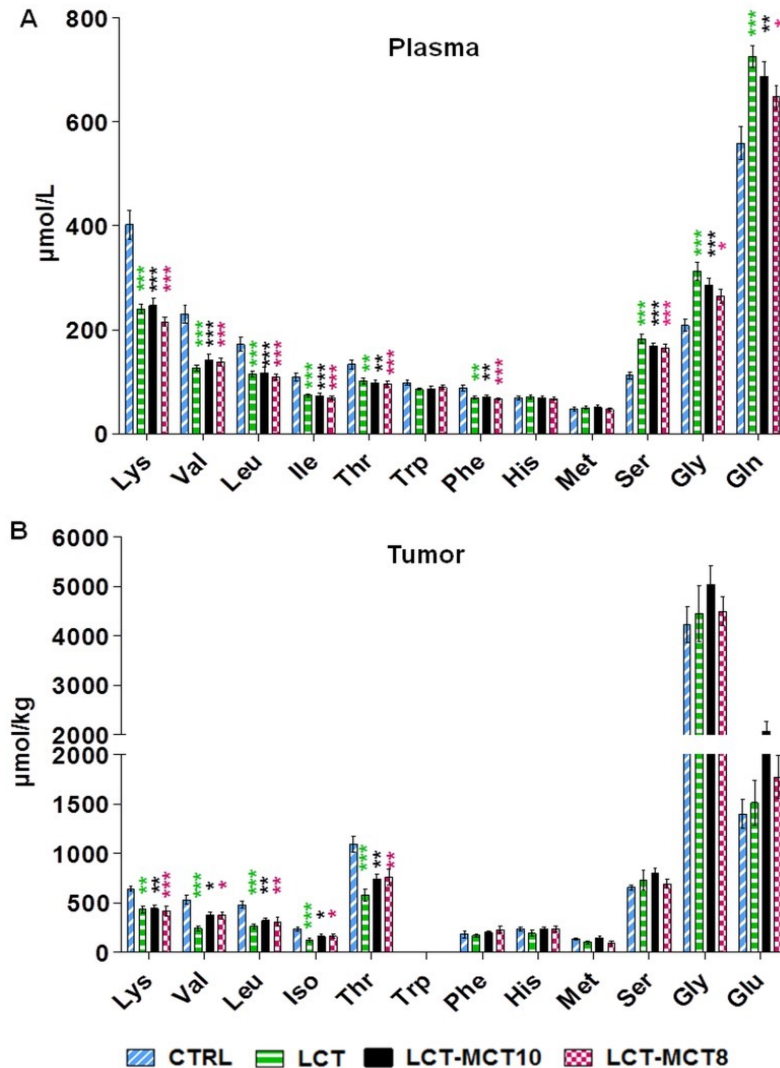
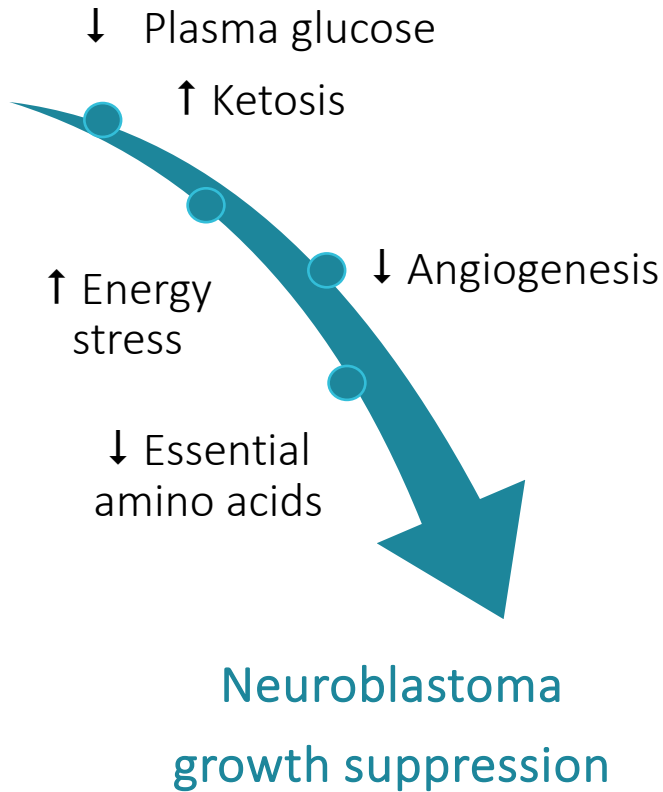
Ketogenic dietary intervention induced energy stress in Neuroblastoma



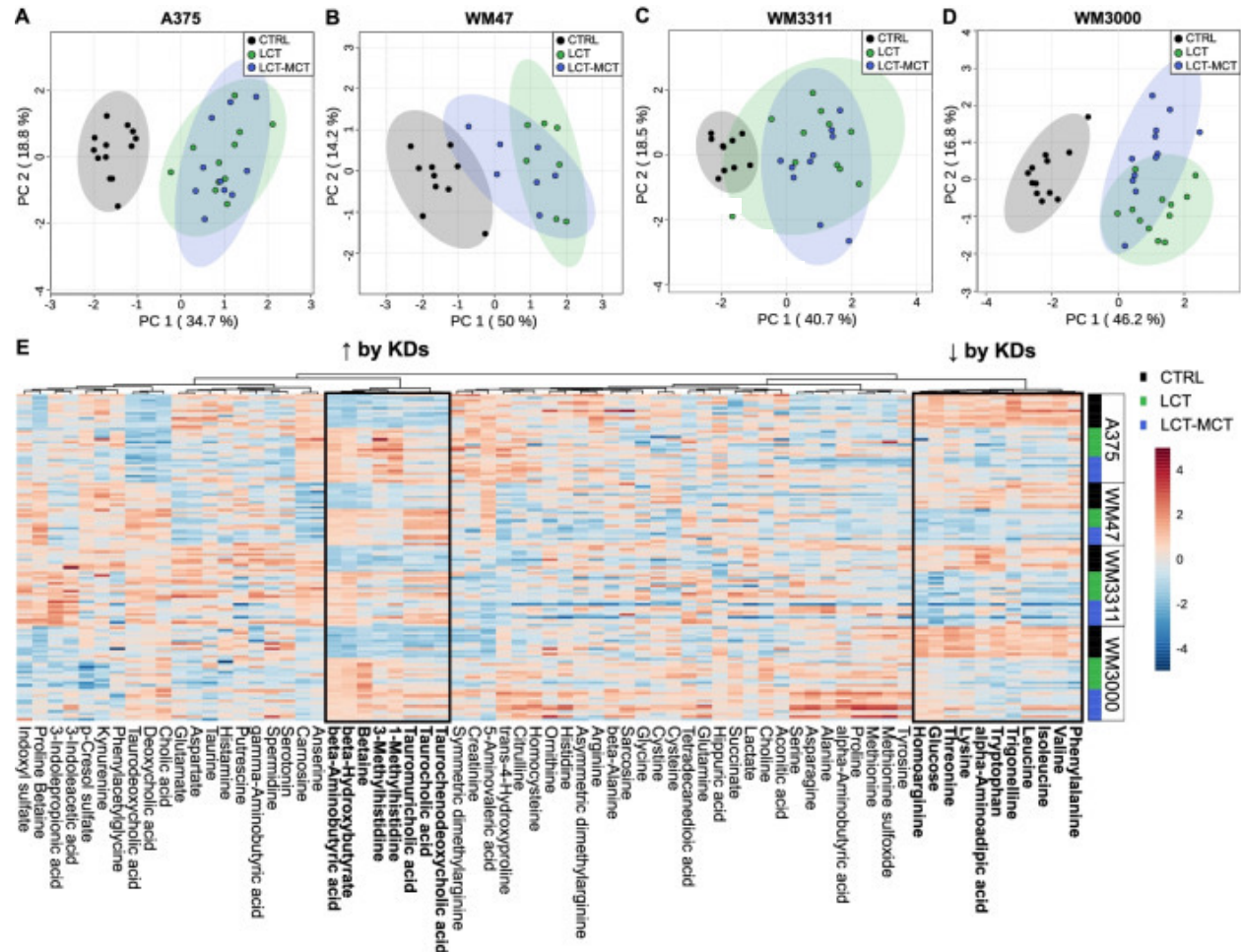
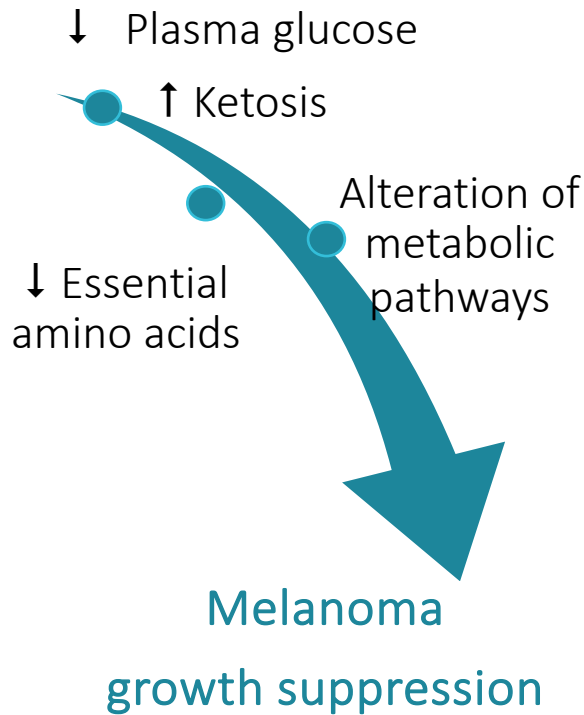
Ketogenic diet promoted the anti-angiogenic effect of chemotherapy



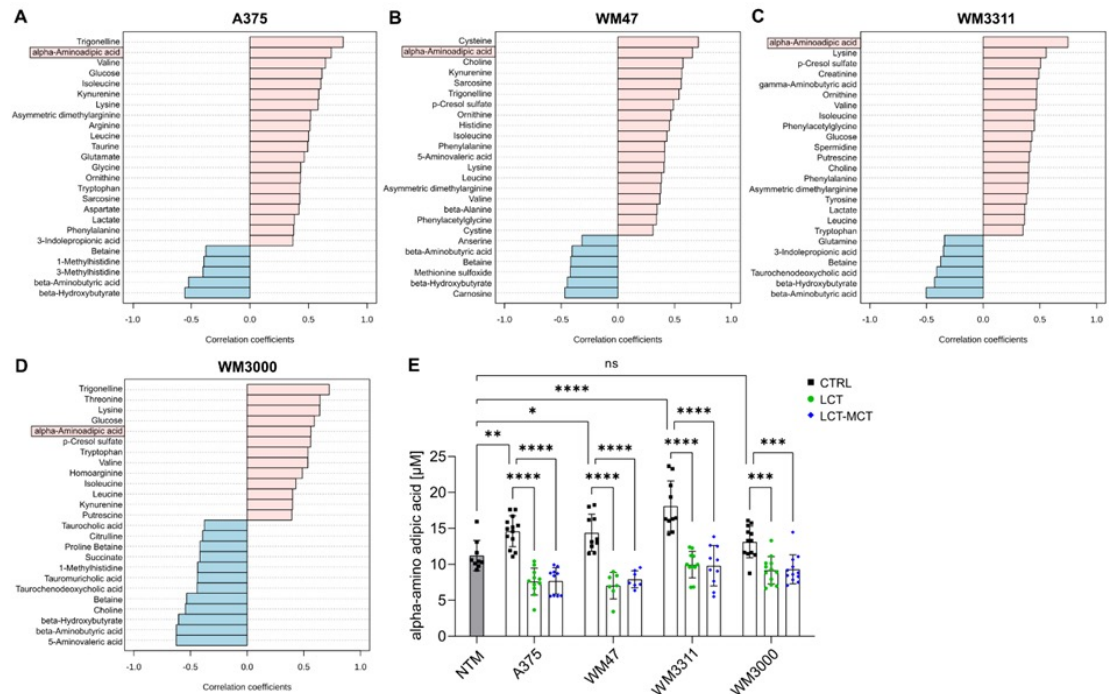
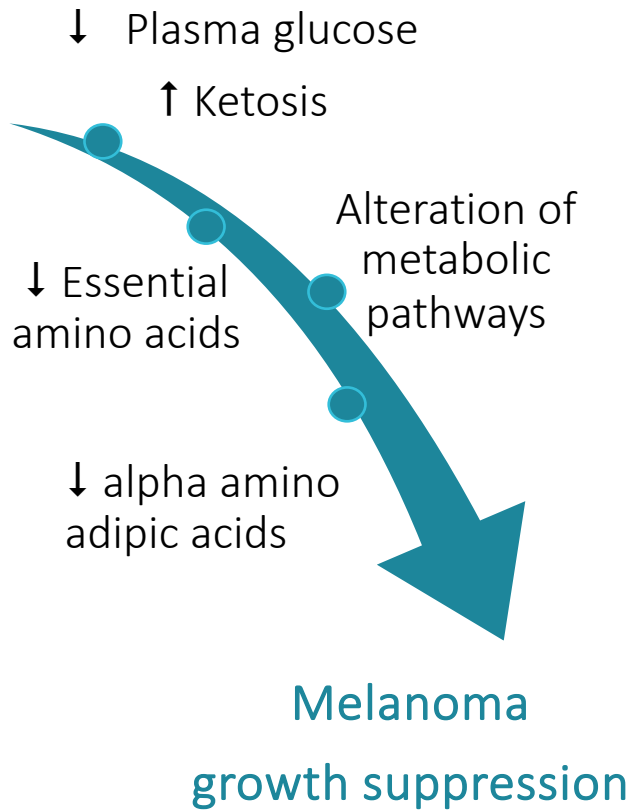
Ketogenic diet reduced the levels of essential amino acids in plasma and tumor



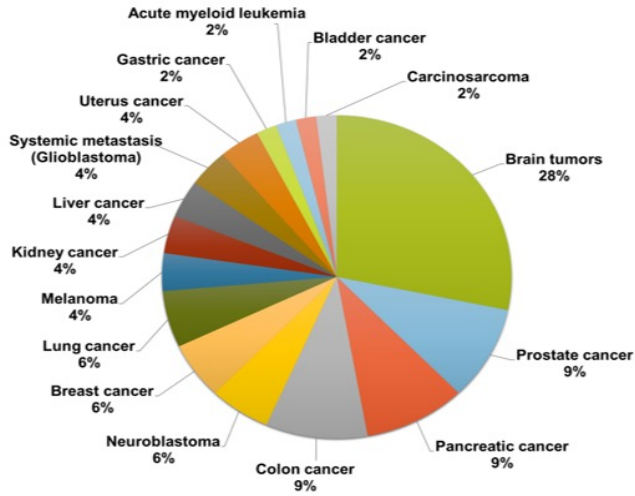
Ketogenic diets reduce plasma levels of essential amino acids and metabolic pathways



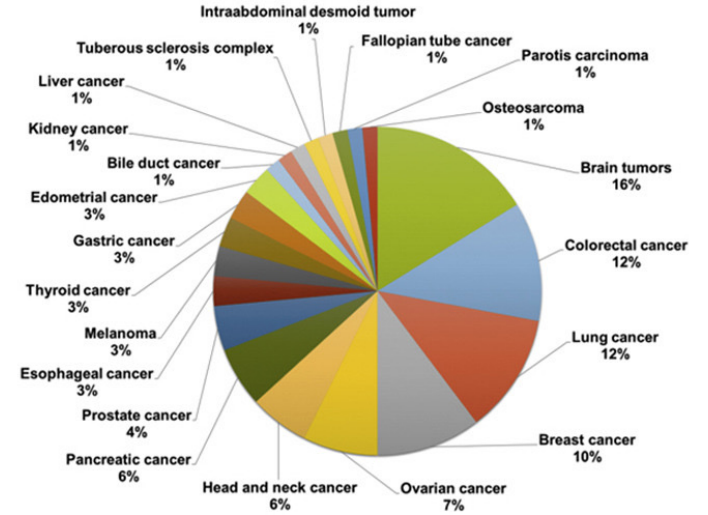
Ketogenic diets normalize the concentration of alpha-amino adipic, a risk biomarker in melanoma



Preclinical studies

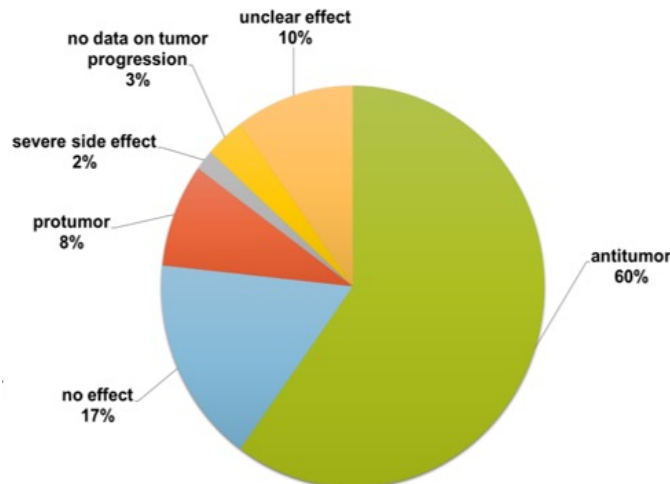


Clinical studies



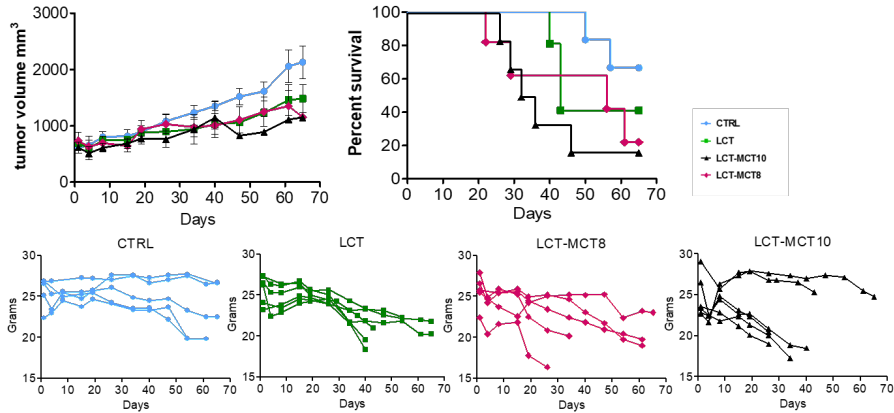
Proposed effect on tumor cells

Renal cell carcinoma

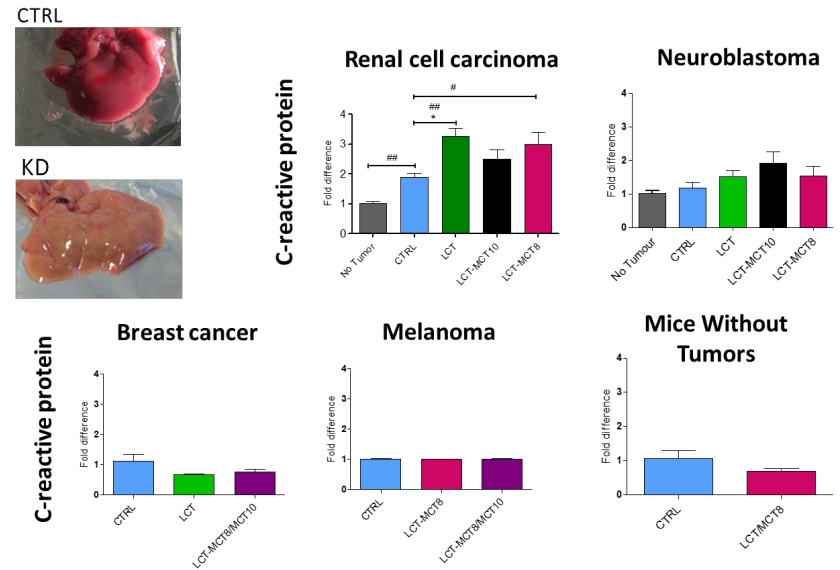


Neuroblastoma
Melanoma
Breast cancer

KDs reduce renal cell carcinoma growth but also overall survival of tumor bearing mice



KDs increase inflammation in the livers of RCC-bearing mice



Vidali, Aminzadeh-Gohari et al. Oncotarget. 2017

Thank you!