

AND NOW MEET THE TRANSMITTERS

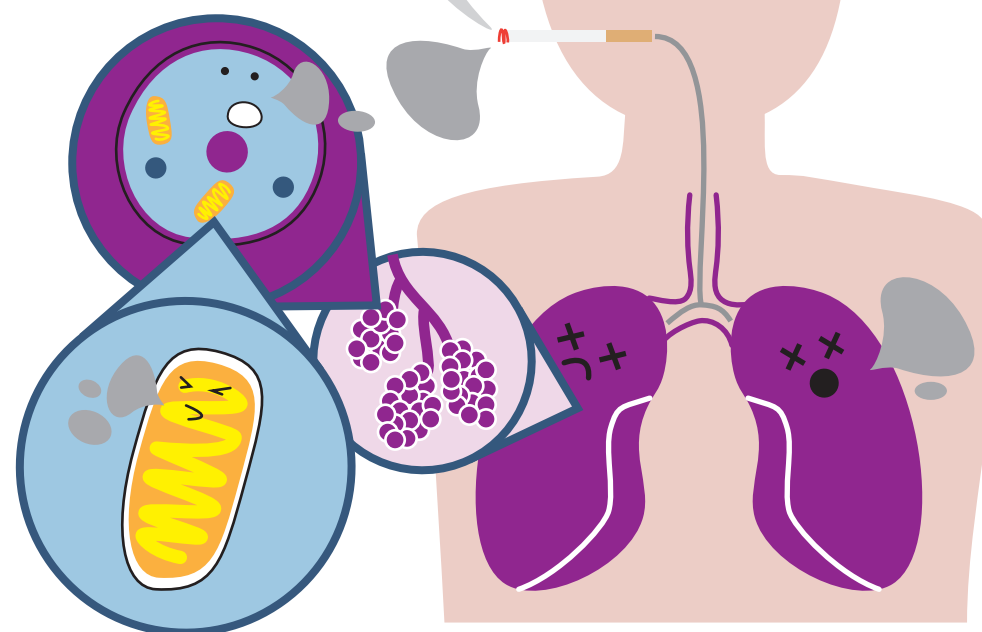
MITOS, CIGARETTE SMOKE AND LUNG CANCER

SAHARNAZ SARLAK
UNIVERSITY OF BORDEAUX, FRANCE



COUCOU! I'M SAHARNAZ!
I AM A RESEARCHER.
DO YOU KNOW WHAT I'M DOING?
I AM TRYING TO UNDERSTAND
HOW CIGARETTE SMOKE CAN
AFFECT MITO'S HEALTH.

I EXAMINE THE LUNG CELLS WITH AND WITHOUT EXPOSURE
TO CIGARETTE COMPONENTS AND THEN I OBSERVE HOW
MITOS ARE AFFECTED IN THIS PROCEDURE AND CAUSE
LUNG CANCER.

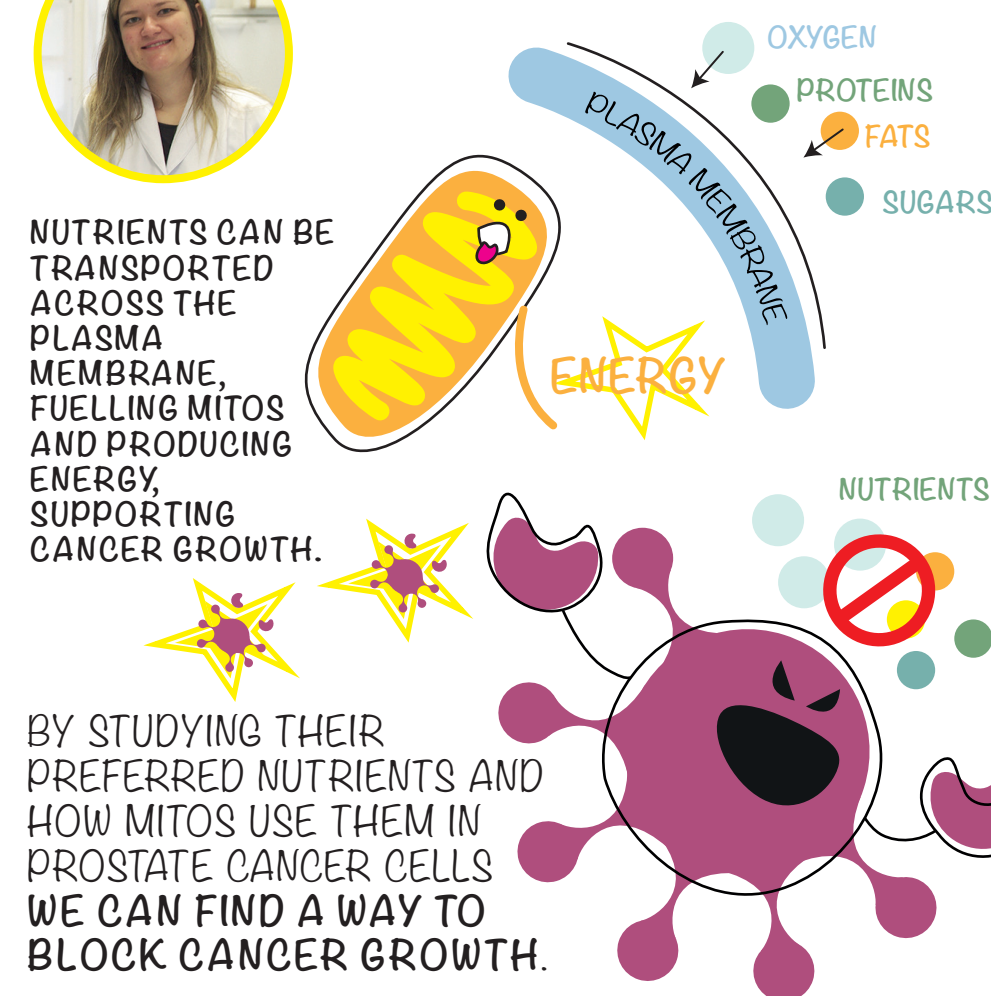


MITOS FUNCTION IN PROSTATE CANCER MEDIATED BY NUTRIENT UTILIZATION

ANA CAROLINA BASTOS SANT'ANNA SILVA
OROBOROS INSTRUMENTS



MITOS RESPOND TO STIMULI TO MAINTAIN THE
BALANCE OF METABOLISM.

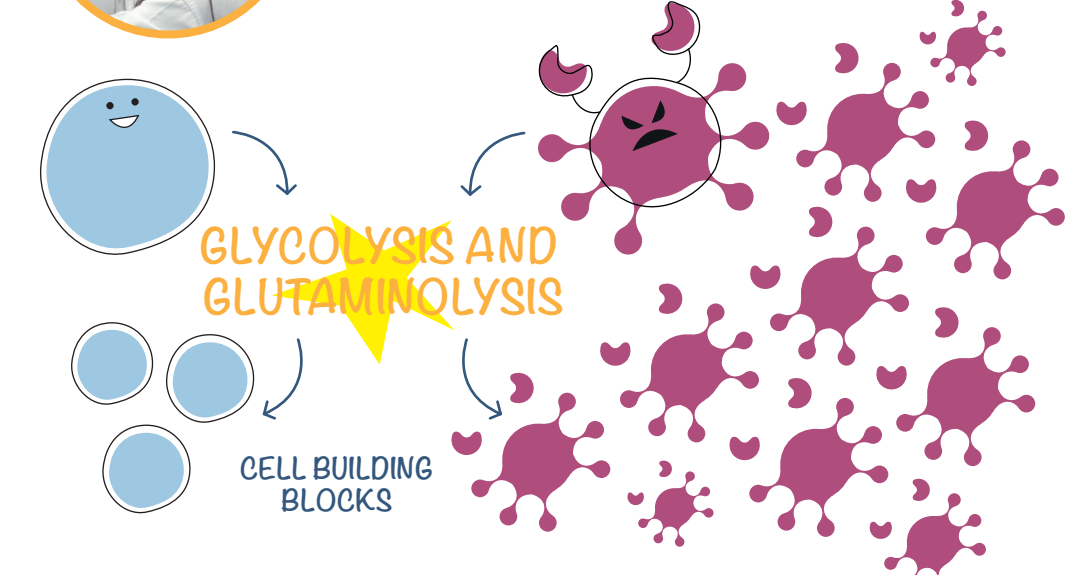


HOW CANCER CELLS PRODUCE ENERGY?

FLORIANA JESSICA DI PAOLA
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NORMAL CELLS USE NUTRIENTS (I.E. GLUCOSE, GLUTAMINE) IN ORDER TO CARRY OUT THEIR SPECIFIC JOB. CANCER CELLS CONSUME A LOT OF NUTRIENTS IN ORDER TO PROLIFERATE FASTER AND WITHOUT ANY CONTROL.



THE METABOLISM OF CANCER CELLS (I.E. GLYCOLYSIS AND GLUTAMINOLYSIS) IS ALTERED AND, UNLIKE NORMAL CELLS, THEY MOSTLY CONVERT THE NUTRIENTS INTO CELL BUILDING BLOCKS. UNDERSTANDING THE CAUSES OF THEIR METABOLIC DYSFUNCTIONS WILL ALLOW US TO FIGHT CANCER.

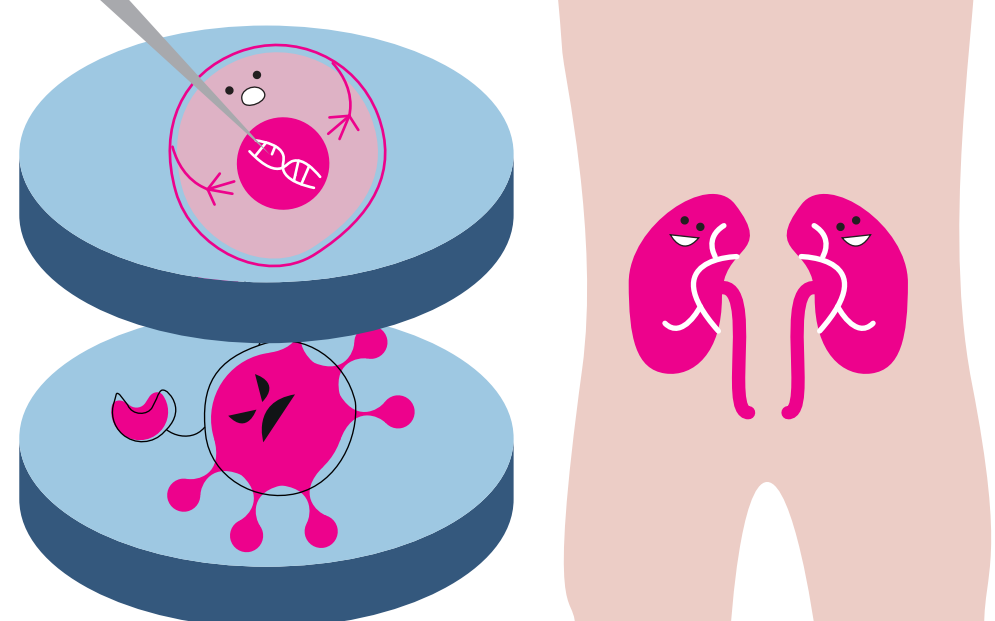
UNDERSTANDING HOW THE LOSS OF FUMARATE HYDRATASE CAUSES CANCER

CHRISTINA SCHMIDT
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THE FUMARATE HYDRATASE IS A METABOLIC ENZYME IN THE MITOCHONDRIA, AND WHEN IT IS NO LONGER FUNCTIONING, THIS CAN LEAD TO A SPECIFIC TYPE OF KIDNEY CANCER.

TO MIMIC THIS DISEASE IN THE LABORATORY, WE INTRODUCED A DAMAGE IN THE FUMARATE HYDRATASE GENE OF HEALTHY KIDNEY CELLS.

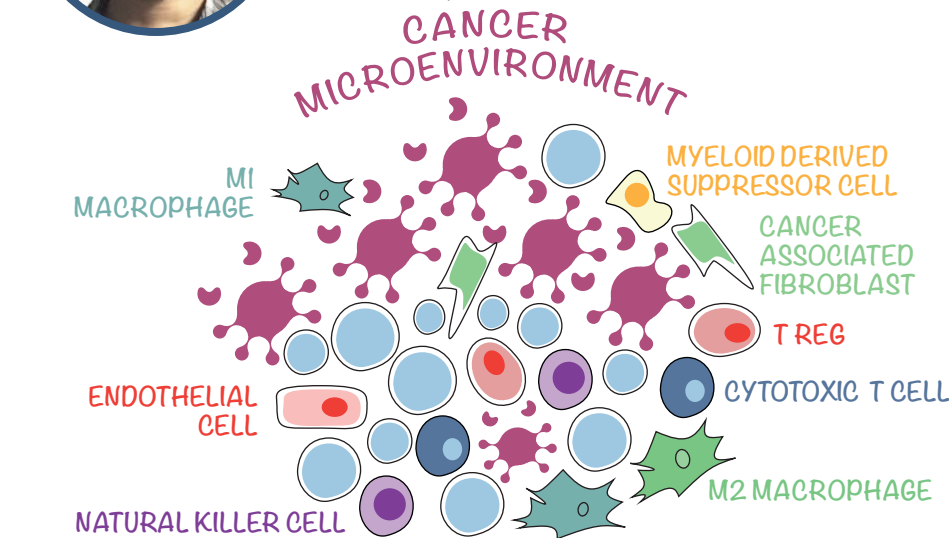


HOW DOES MITO DAMAGE AFFECT THE CELLS SURROUNDING THE CANCER?

NIKKITHA UMESH GANESH
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CANCER CELLS HAVE DIFFERENT TYPES OF CELLS SURROUNDING THEM: THEY ARE CALLED THE CANCER MICROENVIRONMENT (CME). IT CONSISTS OF IMMUNE CELLS, BLOOD VESSELS, FIBROBLASTS ETC...



WHEN THE MITOS ARE NOT FUNCTIONAL/DAMAGED IN A CANCER CELL IT MAY TAKE THE HELP OF ITS CME TO SURVIVE. UNDERSTANDING HOW THE CME HELPS CANCER CELLS TO GROW WILL AID US TO FIGHT CANCER.

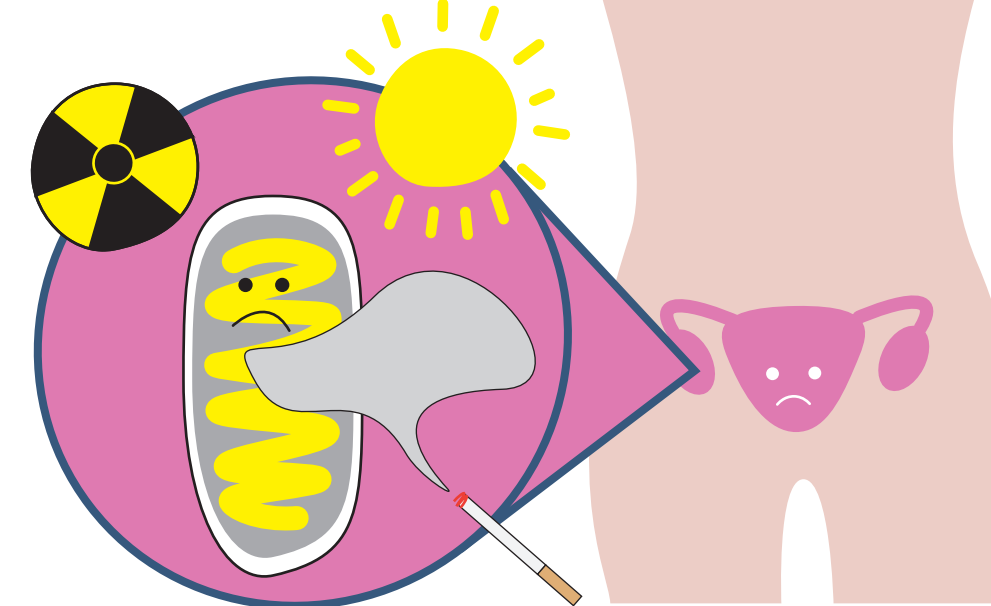
THE ROLE OF MITOS IN OVARIAN CANCER

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EXPOSURE TO CERTAIN THINGS LIKE TOO MUCH SUN, CIGARETTE SMOKE AND RADIATION CAN CAUSE HEALTHY CELLS TO BECOME CANCER CELLS: THEY HAVE ABNORMAL MITOS THAT MAKE LESS ENERGY AND BUILDING BLOCKS THAT SUPPORT THE CANCER.

WE WOULD LIKE TO KNOW MORE ABOUT THE ABNORMAL MITOS IN CANCER CELLS IN THE OVARIES, SO WE CAN FIGHT CANCER.

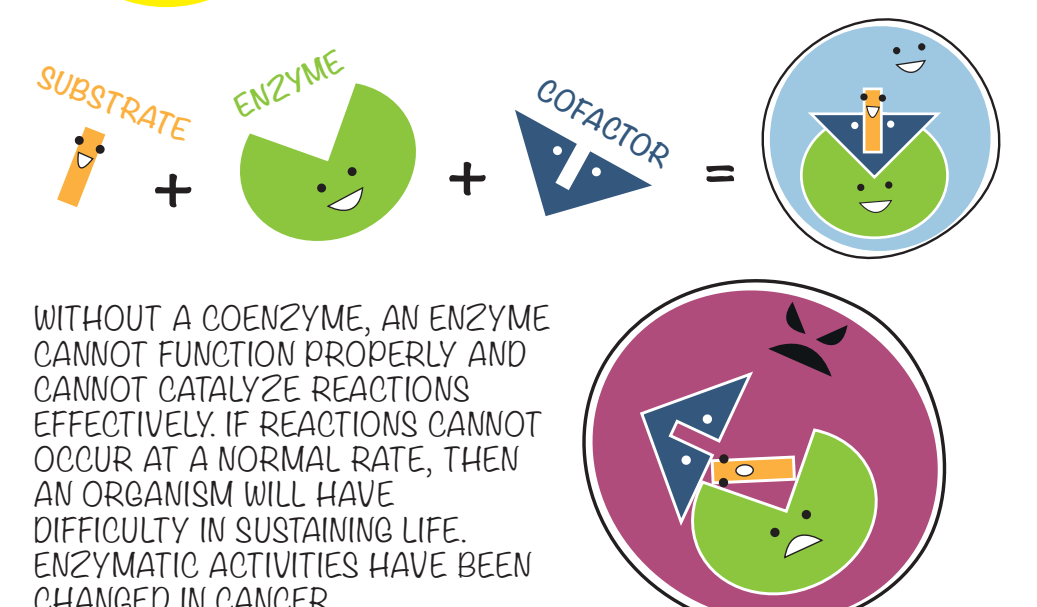


MEASURING THE AMOUNT OF COENZYMES IN CANCER CELLS

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ENZYMES ARE BIOLOGICAL MOLECULES THAT CARRY OUT BIOCHEMICAL REACTIONS AND ARE HIGHLY REGULATED BY SUPPORTING MOLECULES, CALLED COFACTORS. A COENZYME, AN ORGANIC COFACTOR, BINDS TO AN ENZYME AND HELPS TO CARRY OUT CHEMICAL REACTIONS.



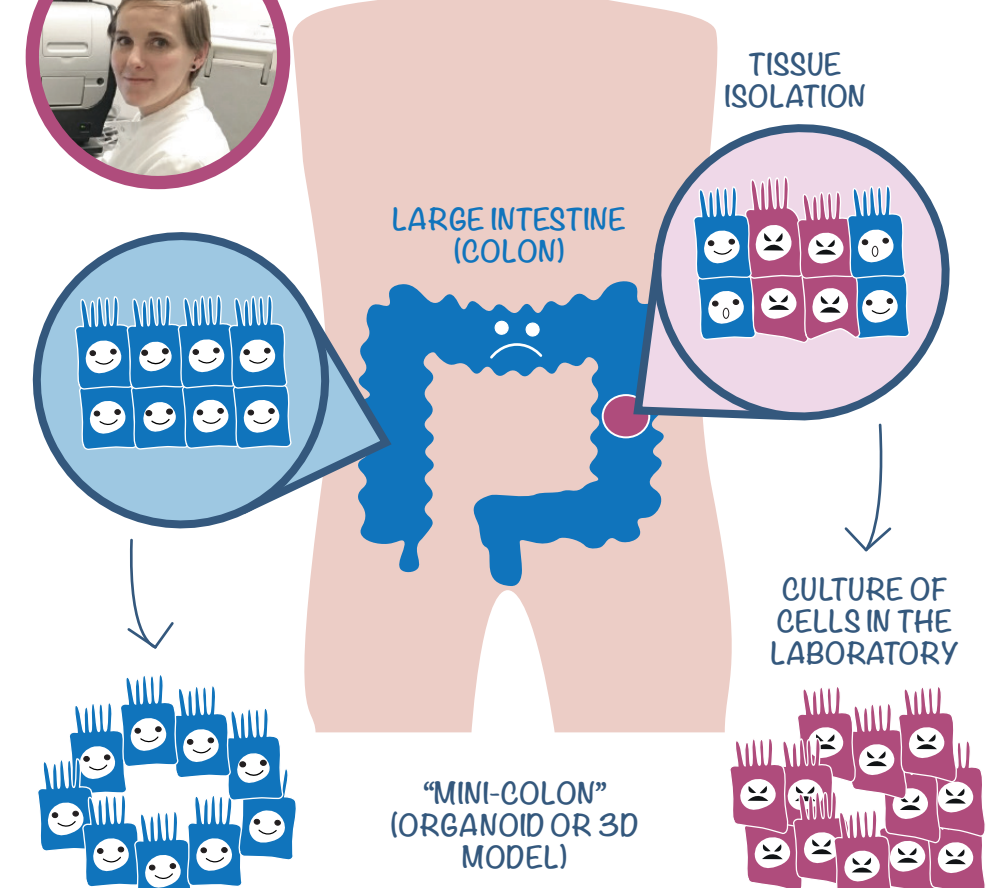
MEASURING THE AMOUNT OF COENZYMES IN CANCER CELLS HELP TO UNDERSTAND HOW THE ENZYMES HAVE BEEN AFFECTED BY COENZYMES.

CANCER CELL MODELS TO TEST MEDICINES THAT AFFECT METABOLISM

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HOW TO STUDY CELLS OUTSIDE OF THE BODY?

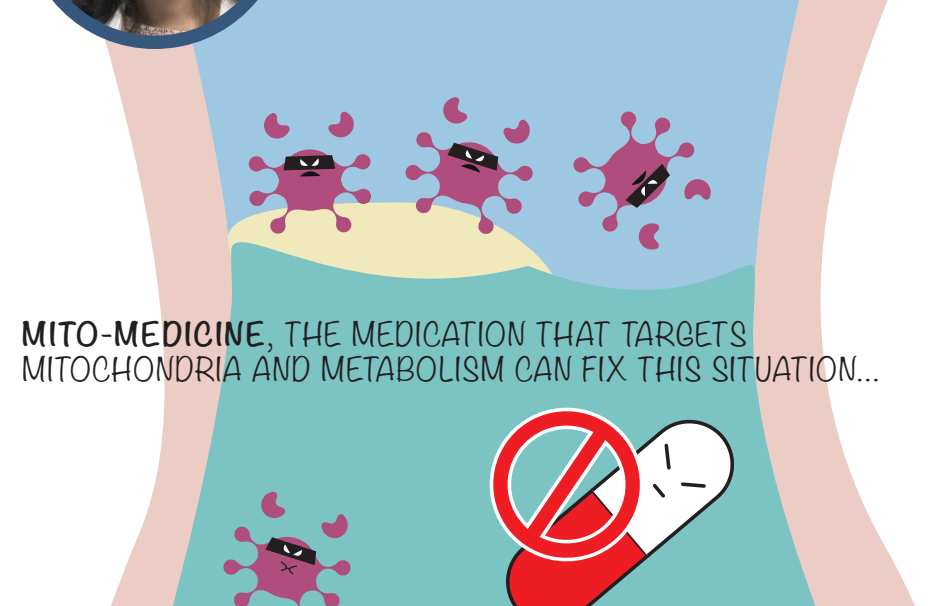


MITO-MEDICINE TO REVERSE NINJA MODE OF CANCER CELLS

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CANCER CELLS ARE ABLE TO LIVE IN APNEA AS THEY MODIFY THEIR METABOLISM (NINJA MODE). THIS ALLOWS THEM TO MIGRATE DEEP IN THE OCEAN OF HUMAN BODIES. THEY GATHER IN DIFFERENT SITES AND MULTIPLY TO FORM GROUPS.



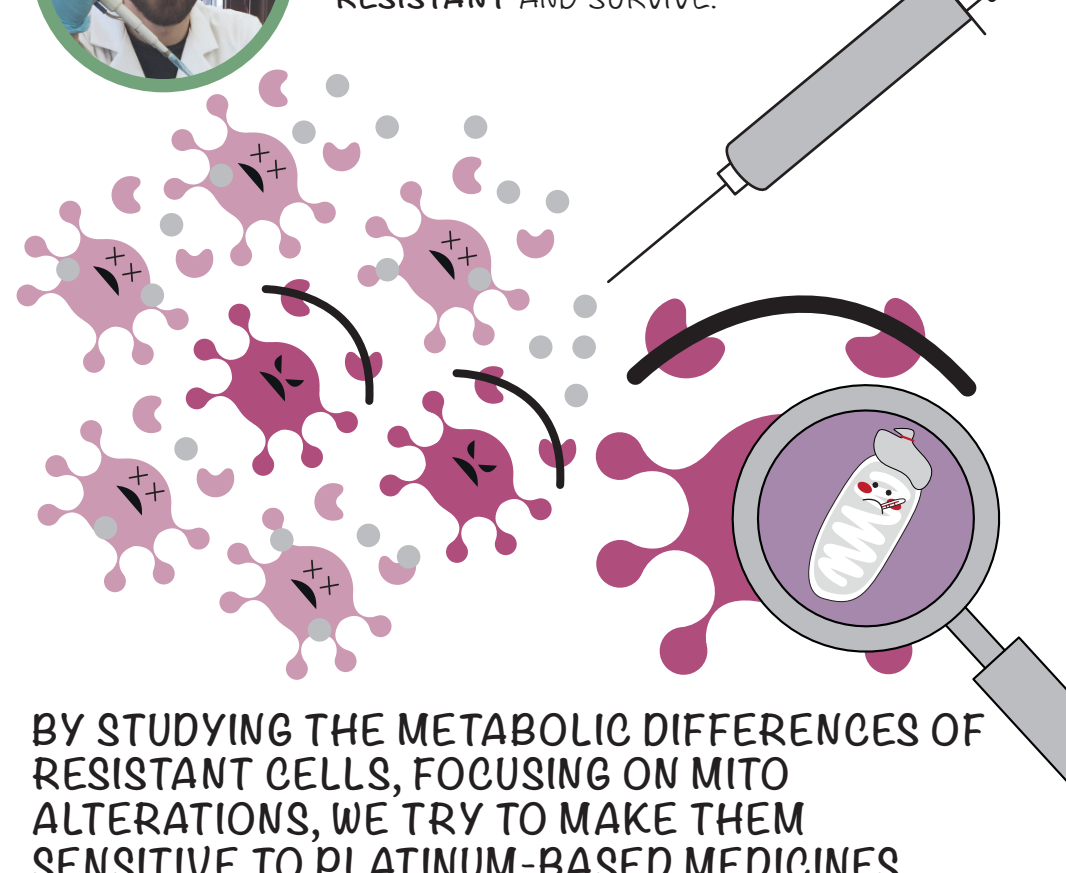
WE WANT TO FOOL CANCER CELLS AND BLOCK THEM FROM GOING IN APNEA WHICH WILL ALLOW A BETTER CONTROL OVER THEIR GROWTH. THIS CAN CONSTITUTE A PRECIOUS TOOL TO CURE PEOPLE SUFFERING FROM THE DISEASE.

ALTERED MITOS MAY MAKE CANCER CELLS RESISTANT TO MEDICINES

LUCA ZAMPIERI
UCL BRUSSELS, BELGIUM



CANCER CELLS GROW UNCONTROLLED AND DISORGANIZED. THE ONCOLOGIST DOCTOR KILLS THEM WITH PLATINUM-BASED MEDICINES, BUT SOME CELLS ARE RESISTANT AND SURVIVE.



IMPACT OF DIET ON CANCER GROWTH

DANIELA WEBER
SALK SALZBURG, AUSTRIA



HEALTHY CELLS MAKE THEIR ENERGY FROM CARBOHYDRATES, FAT AND PROTEINS - COMPONENTS OF OUR DAILY DIET. CANCER CELLS, HOWEVER, PRODUCE MOST OF THEIR ENERGY FROM ONE SOURCE THAT IS SUGAR.

