ANALYSIS OF THE EXPRESSION OF A TUMOR SUPPRESSOR GENE IN TUMORAL AND NON-TUMORAL CELLS

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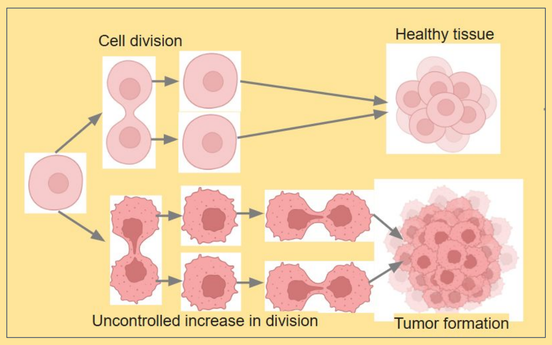
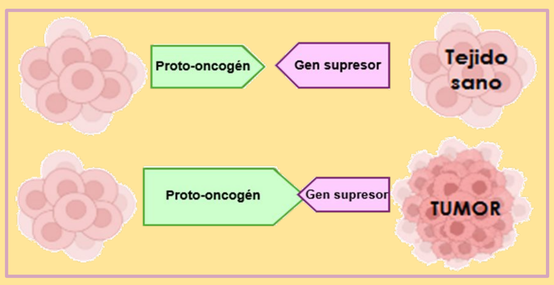
INTRODUCTION

- **Cancer** is a **disease** caused, among other things, by the **uncontrolled multiplication** of **cells** in a specific area of the body.

- In healthy cells, **tumor suppressor genes** are important, so its altered expression could result in a functional imbalance. This could lead to the development of tumor cells, characterized by a high division rate and poor regulation of apoptosis.





OBJECTIVES

- Get RNA from cell pellets.
- Get DNA copy from RNA.
- Amplify by PCR (polymerase chain reaction) a control gene and a tumor suppressor gene.
- Observe the PCR results on an agarose gel.
- We want to study the expression of a tumor suppressor gene in healthy cells and tumour cells.
- To interpret, discuss and represent the most relevant project results and conclusions.

HYPOTHESIS

The tumor suppressor gene will be expressed in healthy cells, but not in tumor cells.

MATERIALS AND METHODS

FIRST SESION

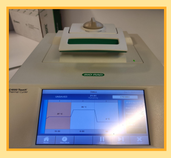
Presentation of the **theoretical backround** and facilities by researchers. Familiarization with **laboratory materials and equipment.**

SECOND SESION

1. Obtaining **RNA** from **cellular pellets** using a commercial kit.

2. Measurement of RNA concentration in **Nanodrop.**

3. Obtaining **DNA copy** by **retrotranscription.**



4. Tumor suppressor gene and control gene amplification by PCR.

THIRD SESION

1. **Agarose gel** elaboration**.**

2. **Samples** loading into the gel **wells**.

3. Observation of **results** in a transilluminator.

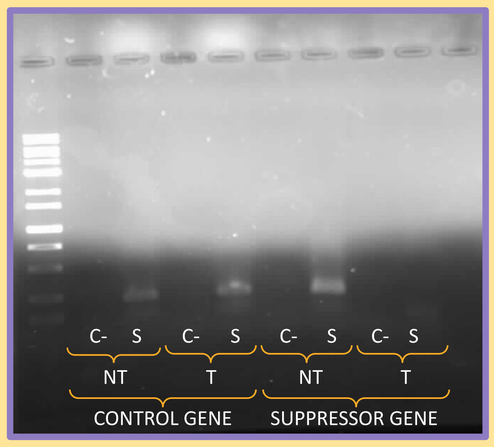
RESULTS

ARN QUANTIFICATION

CELL LINE	CONCENTRATION (ng/µl)
Non- tumoral	243,8
Tumoral	162,3

VISUALIZATION OF THE PCR PRODUCT IN AGAROSE GEL

- In the **negative control** there is no amplification in any of the situations.
- Amplification of the **control gene** is observed in sample of both cell types.
- In the **tumor suppressor gene**, there is amplification in the non-tumor line sample, while there is no amplification in the tumor line sample.



NT: non-tumor cells
T: tumor cells

C-: control -
S: sample

CONCLUSIONS

- **RNA** obtained has a **sufficient concentration and quality** to be used as a template for the DNA copy obtaining.

- **PCR** has been developed **correctly** for the **control gene**, since expression is observed in both healthy and tumour cells.

- **Negative controls** for the control gene and for the tumor suppressor gene show **no expression,** so we consider the results to be adequate.

- **The tumor suppressor gene studied is expressed in healthy cells but not expressed in tumoral cells.**

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