Cancer Treatment and Prevention Webquest

A. Cancer Prevention

Find out about your own risk for different types of cancer at: https://risk.oncolink.org/

Note: answer question # 7 as if you have a Bachelor's degree. Assuming that you intend to (and probably will!!) get one, it puts you in a slightly different risk factor group than saying that you just have a high school degree.

1. Click on "Begin Questionnaire" and fill out the information as best you can on the following pages.

2. When you finish, you will see your results in a chart, showing your risk for certain types of cancer.
List one thing that you are doing right:

List one thing that is modifiable:

List one thing that is not modifiable:

List one thing that is due to genetics and family history:

3. Select **one of the** cancers that you are at risk for OR are interested in.

cancer type =

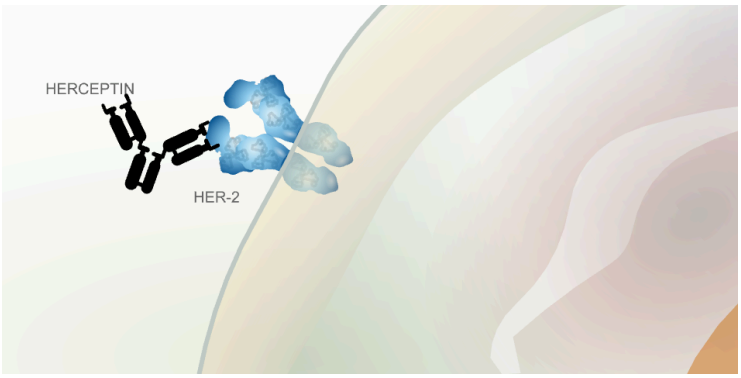
Go to Oncolink at: https://www.oncolink.org/. **Select Cancer Types at the top.** If the cancer that you are interested in is not shown, use the search bar.

Briefly describe:
1. the risk factor(s) associated with that cancer

2. how to prevent or screen for that type of cancer

B. Cancer Treatment

1. Go to http://www.insidecancer.org/ **- it might take a full minute to load so be patient!**
Select - Diagnosis and Treatment: Pharmacogenetics (slides 1-5)



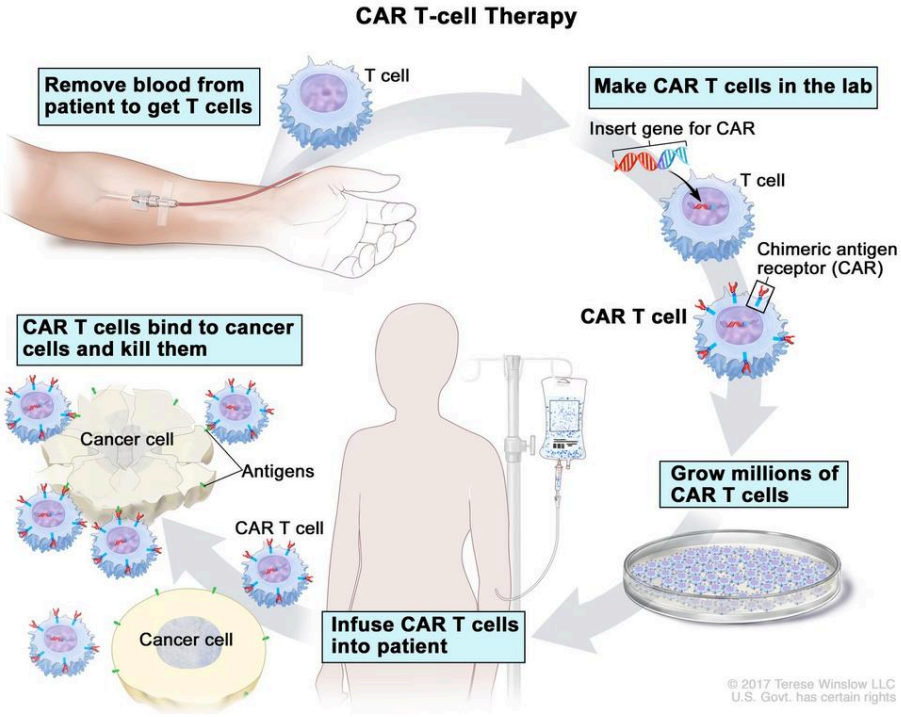
1. What is the normal role of Her-2 in cells?

2. Why is the knowledge of an individual's specific cancer gene mutation essential when using the drug Herceptin? (this is an example of pharmacogenetics - using precision medicine to target a person's specific genetic profile).

2. Immunotherapies & Precision Medicine:

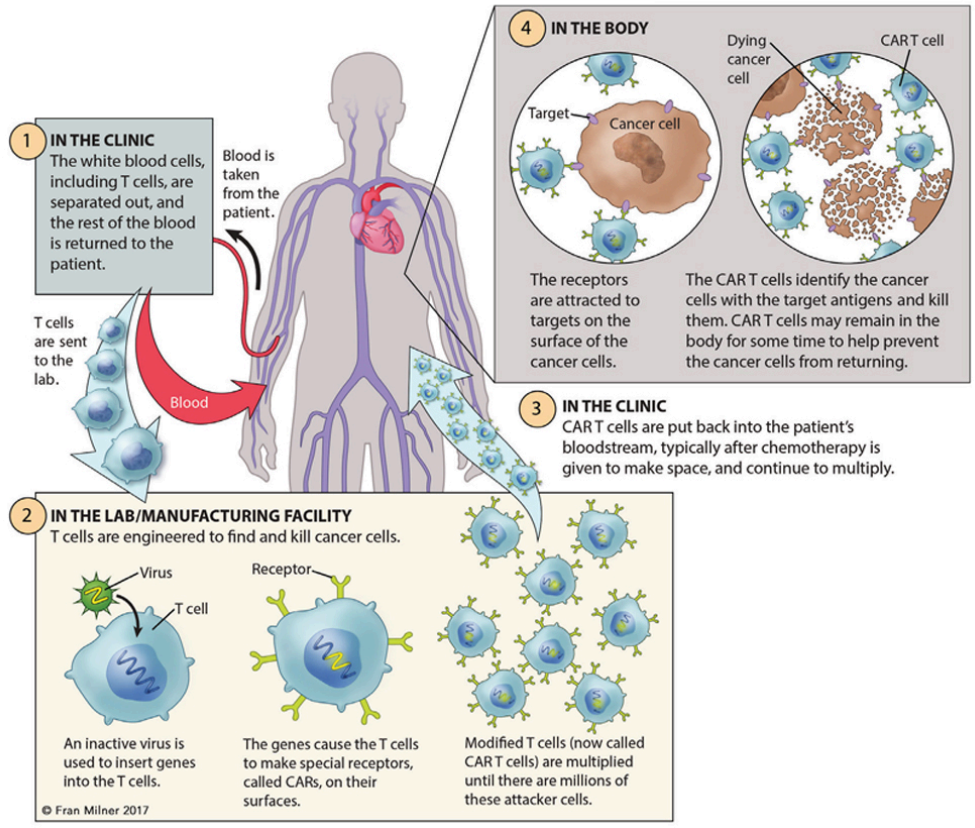
1. Go to
https://www.cancer.org/treatment/treatments-and-side-effects/treatment-types/immunotherapy/car-t-cell1.html
How is CAR-T cell therapy different than targeted drug therapy?

2. Use the diagram below (or the one at the website) to explain to your 10 year old neighbor who has leukemia, how the CAR-T cell therapy that they are about to receive is going to defeat their cancer.



3. Use the following 2 sites and the diagram below to explain to your college-age science major friend how CAR-T cell therapy is going to defeat their leukemia! Be sure to include the following terms/concepts: normal function of T-cell, receptor, role of modified virus, what chimeric antigen receptor means,
https://www.pennmedicine.org/cancer/navigating-cancer-care/treatment-types/immunotherapy/what-is-car-t-therapy
https://www.lls.org/treatment/types-treatment/immunotherapy/chimeric-antigen-receptor-car-t-cell-therapy

Autologous CAR T-Cell Therapy Process



*if time - 3. Try to find a gene associated with one of that type of cancer at: https://www.mycancergenome.org/content/disease/

a. Select Diseases and search for your type of cancer.

b. Look at the description of your cancer type and scroll down to find the graph showing the most commonly mutated genes involved with that cancer

c. Select Associated Genetic Biomarkers on the left side, scroll down and select one of the most common genes.

cancer type: gene name :

gene location (chromosome number, p or q arm and "address")

specific mutation in that gene (insertion, deletion, frameshift, amplification, etc.) if available:

function of gene:

frequency of gene in causing that cancer?

*Try to find the location/role of that gene's protein on one of the diagrams on your cancer slides and show/explain it to your teacher!

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7783321/