Harnessing the immune system for cancer treatment: Immune Surveillance
UCTV 2012 Osher Mini Medical School for the Public

0) What is immune surveillance ? Discuss with your partner. Write down some ideas. What are some key words associated with this concept ?

1)The pioneers of the immune surveillance hypothesis. Who ? When ? For each statement, indicate the author and the time frame of the breakthrough.

1900's 1950's Lewis Thomas Paul Erlich Frank Burnet

He postulated that the immune system surveys and eliminates tumors.

He demonstrated that tumors can stimulate the immune system.

He proposed that tumors evolve and adapt to evade the immune system.

2) Immune surveillance and melanoma. Watch the next part and underline the key words you hear.

Breast cancer cells tumor-associated antigens proteins bacteria tumor cells

Antigen-presenting cells cytotoxic T-cells sarcoma tumor site lymph nodes

Now listen again, this time associating with (a) key word(s) with verbs from the list below.

Release	Take up	Recognize	Destroy
shed	educate	target	Express

Now write five sentences that describe the mechanism.

3) Presenting visuals. Now look at the diagram. Label your diagram with information in note form in view of defining and explaining elements in the cycle to your partner.

4)Human cancers associated with immmunosuppression. Dr. Fong develops the five cancers presented on his slide. Can you take notes on what he says ? Then compare with your partner.

Epstein Barr virus	
Kaposi's sarcoma (HHV8)	
Cervical cancer (HPV)	
Stomach cancer (H.Pylori)	

5) Presenting a graph.

i)Watch the next part and give the order of the information below.

_____ interpreting the data in the graph

_____presenting what the graph shows

_____presenting the concept that the graph illustrates

_____clarifying or explaining the pertinent elements in the graph

ii)Now listen again and fill in the signposting language he uses to present the elements in the graph.

_____an example of ovarian cancer. This was actually published in the New England Journal. So this is not a fringe science, this is something that is actually very high visibility and that people are thinking about. What_____, and _____a few of these curves as we go, _____ Kaplan Meyer plots, and what they are_____, so the horizontal axis, is basically time, months, so how long is a person doing OK, or how long is a person living_____ are different things, in this case, _____progression-free survival, so how long does a person live before their cancer gets worse or comes back. And in this case, it's overall survival. How long does a person actually live. _____is if you look at women who have ovarian cancer and you actually look in their abdomen, where their tumors are, there's often fluid that's there, if a woman has T cells within their tumor and their fluid, they actually survive a lot longer than women who have no T cells or no immune response going on within their tumors. And that's true whether or not you look at patients who undergo surgery –_____. You look at patients undergoing chemotherapy. The results are pretty striking, _____, those women who have immune responses or these T cells within the tumor, so actually (do) significantly better.

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CORRECTION

0) What is immune surveillance ? Discuss with your partner. Write down some ideas. What are some key words associated with this concept ?

1)The pioneers of the immune surveillance hypothesis. Who ? When ? For each statement, indicate the author and the time frame of the breakthrough.

1900's 1950's Lewis Thomas Paul Erlich Frank Burnet

He postulated that the immune system surveys and eliminates tumors. Erlich 1900's

He demonstrated that tumors can stimulate the immune system. Thomas 1950's

He proposed that tumors evolve and adapt to evade the immune system. Burnet « a few years later=50's , so same period

2) Immune surveillance and melanoma. Watch the next part and underline the key words you hear.

~~Breast cancer cells~~ tumor-associated antigens proteins ~~bacteria~~ tumor cells *Melanoma cells*

Antigen-presenting cells cytotoxic T-cells ~~sarcoma~~ tumor site lymph nodes

Sarcoma=cancer of soft tissue (ligament, fat, muscle etc)

Now listen again, this time associating with (a) key word(s) with verbs from the list below.

Release	Take up	Recognize	Destroy
shed	educate	target	Express

Now write five sentences that describe the mechanism.
Here are 5 example sentences :

1) tumor cells shed or release tumor-associated antigen (protein)
2) antigen-presenting cells take up these proteins
3) antigen-presenting cells educate cytotoxic T-cells
4) T-cells recognize tumor-associated antigen or the bits of protein
5) T-cells destroy proteins or target them for destruction/or go back to tumor site and recognize melanoma cell and target it for destruction

3) Presenting visuals. Now look at the diagram. Label your diagram with information in note form in view of defining and explaining elements in the cycle to your partner.

4)Human cancers associated with immmunosuppression. Dr. Fong develops the five cancers presented on his slide. Can you take notes on what he says ? Then compare with your partner.

Epstein Barr virus	This virus (which most people harbor) can cause infection and tumor growth in the immune system in transplant patients who take immune suppression drugs to prevent graft from being rejected
Kaposi's sarcoma (HHV8) or Kaposi sarcoma	common in AIDS patients , who have suppressed immune systems

Cervical cancer (HPV)	Caused by human papilloma virus, occurs more in people with suppressed immune system
Stomach cancer (H.Pylori)	Caused by helicobacter pylori, more frequent in people with suppresses immune systems

5) Presenting a graph. (breast cancer)

i)Watch the next part and give the order of the information below.

__4___ interpreting the data in the graph

__2___presenting what the graph shows (this is an example of overian cancer)

__1___presenting the concept that the graph illustrates (slide entitled immunosurveillance in humans)

___3__clarifying or explaining the pertinent elements in the graph

ii)Now listen again and fill in the signposting language he uses to present the elements in the graph.
Distribute handout

___**This**_____an example of ovarian cancer. This was actually published in the New England Journal. So this is not a fringe science, this is something that is actually very high visibility and that people are thinking about. **What____these curves are__**, and **__I'll be showing___**a few of these curves as we go, **__they're called__**Kaplan Meyer plots, and what they are**___on the X axis__**, so the horizontal axis, is basically time, months, so how long is a person doing OK, or how long is a person living**___On the Y axis____**are different things, in this case, **___this is called____**progression-free survival, so how long does a person live before their cancer gets worse or comes back. And in this case, it's overall survival. How long does a person actually live. **____The main point I want to raise here_____**is if you look at women who have ovarian cancer and you actually look in their abdomen, where their tumors are, there's often fluid that's there, if a woman has T cells within their tumor and their fluid, they actually survive a lot longer than women who have no T cells or no immune response going on within their tumors. And that's true whether or not you look at patients who undergo surgery –**___what this panel illustrates on the bottom_____**. You look at patients undergoing chemotherapy. The results are pretty striking, **__you can see these red curves__**, those women who have immune responses or these T cells within the tumor, so actually (do) significantly better.