Find Your Match

Objectives

By the end of this session, participants will have:

- Identify and explain the techniques being explored in gene therapy

Methods

Small group work

Large group discussion

Materials Required

- Gene therapy Statements and Answers
- Flip chart
- Markers
- Tape
- Scissors

To prepare for this session

- Review the content presented in the PowerPoints and resource materials. Be sure that you are comfortable explaining the material.
- Read through the entire training session
- Prepare all materials needed to conduct the session

To conduct the session

Step 1

- Briefly explain to participants that they will be playing a matching game to reinforce their understanding of the key strategies and terms of HIV gene therapy

Step 2

- Divide the participants into small groups, about six or eight people in each, or as appropriate depending on the total number of participants
- Provide each group with a pre-cut set of both Gene therapy Statements and Answers
- Have participants work together in their group to match each statement to the correct answer
- Allow about 10-15 minutes for this part of the exercise

Step 3

- Have participants remain in their small groups and answer these questions for each match
- Allow 35minutes
    - Present the flip chart paper with the following questions
    - Why are these terms important to understand gene therapy?
    - In your experience what has previously been confusing about gene therapy?
    - Describe any misconceptions about HIV gene therapy research you have heard?

Step 4

- Reconvene the large group for any remaining broad discussion or questions.

Gene Therapy Statements

These cells are grafted from skin, bone marrow or blood

This is the delivery of intact, living cells into a patient to treat disease

The process of eliminating the current immune system to “create space” for a new or modified system

The delivery of therapeutic genes into a patient’s cells to treat disease

When editing/modifying techniques make changes to the wrong section of gene and cause adverse events.

CD8+ and CD4+ that can attack HIV infected cells

A strategy that can better screen out unmodified cells. Potential yield of 95%

A barrier to ex-vivo gene therapy

These are a replication defective delivery system

One of four major genome editing tools

Using the participants own cells for a transplantation

A new class of genetic engineering tools uses this type of vector to target hematopoietic cells in vivo

A potential target of gene therapy

Answer Key

These cells are grafted from skin, bone marrow or blood
Hematopoietic cells

This is the delivery of intact, living cells into a patient to treat disease
Cell therapy

The process of eliminating the current immune system to "create space" for a new or modified system
Conditioning

The delivery of therapeutic genes into a patient's cells to treat disease
Gene therapy

When editing/modifying techniques make changes to the wrong section of gene and cause adverse events.
Off-target

CD8+ and CD4+ that can attack HIV infected cells
CAR T or Chimeric antigen receptor T cells

A strategy that can better screen out unmodified cells. Potential yield of 95%
A genetic handle

A barrier to ex-vivo gene therapy
Low yield of modified cells

A replication defective delivery system
Vectors

One of four major genome editing tools
CRISPR/Cas 9

Using the participants own cells for a transplantation
Autologous

A new class of genetic engineering tools uses this type of vector to target hematopoietic cells in vivo
Viral

A potential target of gene therapy
Envelop receptor binding

These bind to three bases of DNA
Zinc finger nucleases

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