WHAT IS HRD TESTING & WHAT DOES IT MEAN FOR ME?

HRD describes whether cancer cells are able to repair damage to their DNA. This matters because cancers that cannot repair DNA may respond better to certain treatments.

What is HRD?

HRD is an acronym. It stands for Homologous Recombination Deficiency. To understand what HRD is, it is helpful to first understand what the "HR" in "HRD" actually means:

- Homologous recombination (HR) is one of the ways our cells repair damage to DNA. Because DNA damage happens all the time, this repair system is essential for keeping cells healthy.
- When the HR system isn't working properly, the cancer is described as being homologous recombination deficient (HRD). Some cancers have a working HR system (HR-proficient, or HRP), while others do not (HR-deficient, or HRD).
- **HRP** is often referred to as "HRD-negative" and **HRD** is often referred to as "HRD-positive".

Why does my HR-status matter?

Your HR status can affect your treatment options, including medications like PARP inhibitors, which work especially well in HRD-positive cancers. Knowing your HR status helps you and your doctor make informed and personalized treatment decisions.

Your cells have more than one way to repair DNA damage. The HR system is the cell's main repair system. The PARP system is a backup repair system that fixes smaller DNA damage. PARP inhibitors work by preventing cancer cells from repairing their damaged DNA, therefore increasing cancer cell death. Without either repair system working, cancer cells can no longer fix their DNA and eventually die.

The PARP inhibitors currently available in Canada are niraparib (Zejula) and olaparib (Lynparza).

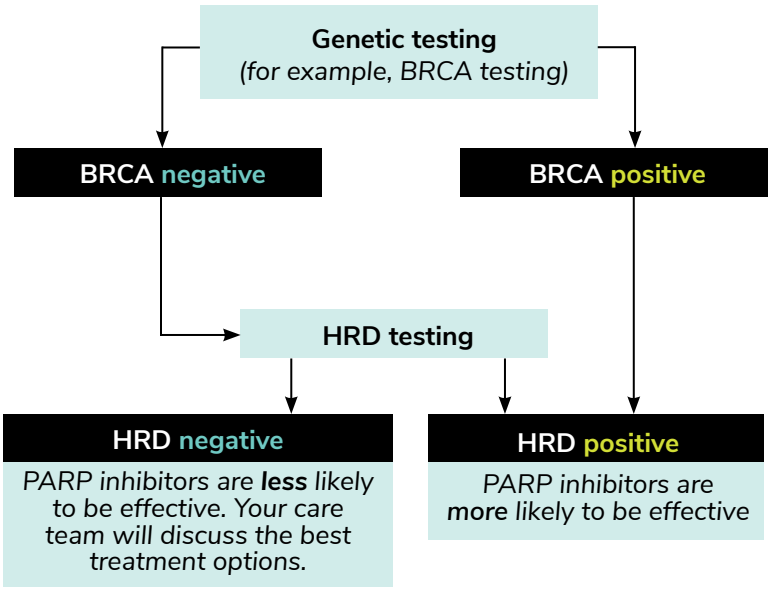
* HR status helps predict how well PARP inhibitors may work, but it is not a guarantee. Some HRD-positive cancers may not respond well to PARP inhibitors, and a few HRD-negative cancers may respond well to PARP inhibitors.

What role do BRCA and other genes play?

Some genes are essential for the HR system to work properly. These include: BRCA1, BRCA2, RAD51C, RAD51D, BRIP1, PALB2 and other related genes. If you have a mutation in one of these genes, the HR system may not work correctly (HRD-positive).

If you already know you have a mutation in BRCA1, BRCA2, RAD51C, RAD51D, BRIP1, PALB2 or similar genes, HRD testing may not be needed.

Ask your oncologist if HRD testing is right for you.



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How do I get HRD testing?

If HRD testing has not been discussed, you may wish to ask your oncologist whether testing is available and/or appropriate for you.

Depending on which province/territory you live in, publicly funded HRD testing may be available. HRD testing may also be accessed in clinical trials, or patients may pay for HRD testing. Speak to your oncologist to learn what options are available to you. This is an evolving situation as research and advocacy efforts are ongoing.

SOME QUESTIONS TO CONSIDER ASKING YOUR DOCTOR

TESTING

- Has my tumour been tested for HRD?
- If not, why not?
- Am I eligible for HRD testing?
- Can my HR status change? Should I be retested at any point?

RESULTS

- If my tumour has been tested for HRD, what were my results?
- What do these results mean?
- What do my test results tell you about how my cancer behaves?

TREATMENT OPTIONS

- How do my HRD results affect my treatment options?
- If I am HRD-negative, can you help me weigh the pros and cons of taking a PARP inhibitor?
  Patient decision aid: Should I take niraparib for my ovarian cancer?
- Are there other treatments that may be more appropriate given my HR status?
- Given my HR status, what would you recommend if you were in my position?

ACCESS

- Is HRD testing publicly funded where I live?
- Do I have to pay for HRD testing?
- Will private insurance cover the test?
- Are there financial assistance programs available?
- Are there clinical trials that I may be eligible for that would include HRD testing?

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