Immunotherapy is a type of cancer treatment that helps your immune system fight cancer. The immune system helps your body fight infections and other diseases. It is made up of white blood cells and organs and tissues of the lymph system.

Immunotherapy is a type of biological therapy. Biological therapy is a type of treatment that uses substances made from living organisms to treat cancer.

- Immunotherapy for colorectal cancer can be given orally or intravenously (IV).
Several types of immunotherapies are used to treat cancer. These include:

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<th>Description</th>
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<td><strong>Immune Checkpoint Inhibitors</strong></td>
<td>Immune checkpoint inhibitors are drugs that block immune checkpoints. These checkpoints are a normal part of the immune system and keep immune responses from being too strong. By blocking them, these drugs allow immune cells to respond more strongly to cancer. (Please see page 3)</td>
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<td><strong>T-cell Transfer Therapy</strong></td>
<td>T-cell transfer therapy is a treatment that boosts the natural ability of your T cells to fight cancer. In this treatment, immune cells are taken from your tumor. Those that are most active against your cancer are selected or changed in the lab to better attack your cancer cells, grown in large batches, and put back into your body through a needle in a vein. T-cell transfer therapy may also be called adoptive cell therapy, adoptive immunotherapy, or immune cell therapy.</td>
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<td><strong>Monoclonal Antibodies</strong></td>
<td>Monoclonal antibodies are immune system proteins created in the lab that are designed to bind to specific targets on cancer cells. Some monoclonal antibodies mark cancer cells so that they will be better seen and destroyed by the immune system. Such monoclonal antibodies are a type of immunotherapy. Monoclonal antibodies may also be called therapeutic antibodies.</td>
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<td><strong>Treatment Vaccines</strong></td>
<td>Treatment vaccines work against cancer by boosting your immune system’s response to cancer cells. Treatment vaccines are different from the ones that help prevent disease.</td>
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<td><strong>Immune System Modulators</strong></td>
<td>Immune system modulators enhance the body’s immune response against cancer. Some of these agents affect specific parts of the immune system, whereas others affect the immune system in a more general way.</td>
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There are 3 types of Checkpoint Inhibitors, CTLA-4, PD-1 and PD-L1.

Ipilimumab (Yervoy®), is a monoclonal antibody medication that works to activate the immune system by targeting CTLA-4, a protein receptor that downregulates the immune system. Cytotoxic T lymphocytes (CTLs) can recognize and destroy cancer cells. Pembrolizumab (Keytruda®) is a selective humanized IgG4 kappa monoclonal antibody that inhibits the programmed death-1 (PD-1) receptor, an integral component of immune checkpoint regulation in the tumor microenvironment. Nivolumab (Opdivo®) is a targeted therapy. It is a human programmed death receptor-1 (PD-1) blocking antibody.

Immunotherapy with the checkpoint inhibitor pembrolizumab (Keytruda®), nivolumab (Opdivo®) ± ipilimumab (Yervoy®) is available in clinical trials with or without chemotherapy. The therapy is not publicly funded in Canada.

(Please note: Pembrolizumab (Keytruda®) is Health Canada approved, has received a positive funding recommendation from the Health Technology Assessment expert review committees in Canada, and should be made available to the MSI-High/MMR-deficient colorectal cancer patient population in the first line treatment of their unresectable or metastatic disease.)

There are three drugs under investigation for targeting PD-L1: atezolizumab (Tecentriq®), avelumab (Bavencio®) and durvalumab (Imfinzi®).

Image courtesy of PMC. Link: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4993158/
SIDE EFFECTS OF IMMUNOTHERAPY
You may have side effects from immunotherapy as a result of the immune system becoming over-active. These can include:

❖ Sore joints
❖ Skin changes
❖ Diarrhea
❖ Flu-like symptoms
❖ Other side effects

Most of the time these can be treated without stopping your immunotherapy treatment, but sometimes reactions are serious enough you may have to stop. Fatal side effects are rare.