What are EDCs?

Endocrine Disrupting Chemicals (EDCs) are chemicals that mimic, block, or interfere with hormones in the body's endocrine system.

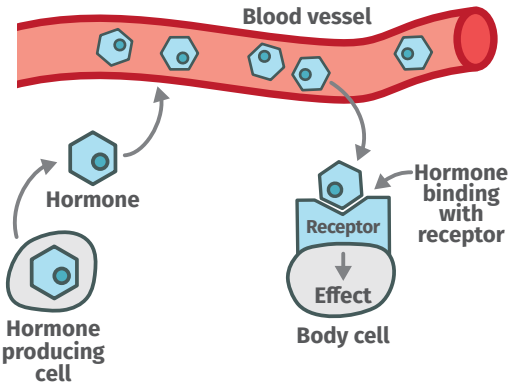
To Understand EDCs, We Must Understand Hormones

Hormones are tiny molecules that are the body's chemical messenger system: they tell different parts of the body what to do. Hormones are produced and released by the body's endocrine organs, such as the thyroid, ovary, and pancreas. Hormones travel through the blood to affect the activity of distant cells.

Hormones influence every system in the human body, from reproduction to energy expenditure, and also guide development and growth in early life.

There are more than 50 hormones, such as estrogen, testosterone, insulin, and adrenaline.

Hormones interact with proteins called hormone receptors. Cells respond to a hormone only if they have the receptors for that hormone.



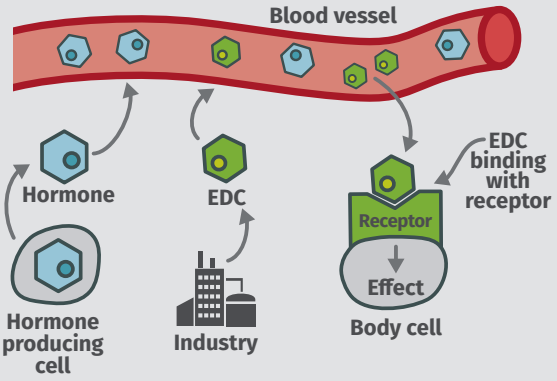
How do EDCs Work?

Endocrine disruptors do just that: disrupt hormones. Scientists have identified key ways that EDCs can affect the body.

EDCs can, for example:

- bind with (activate) hormone receptors
- block (inhibit) hormone receptors
- alter the production of hormones

Some EDCs act on a single hormone, while some can interfere with several hormone systems at once.



If EDCs cause biological effects, are the effects necessarily harmful?

Since we don't know all the long-term consequences of hormonal disruptions caused by EDCs, any exposure could be "adverse" in the long run. What we now know is much worse than what we knew in 1990.

What EDCs are Not

Some argue that even a chocolate bar is an EDC because it increases levels of the hormone insulin.

This is not the case, since eating any food results in increased insulin production.

Rather, an EDC would be a chemical that interferes with the amount of insulin produced after eating, or the ability of insulin to maintain blood glucose control.

Why are EDCs Important?

- We are all exposed to hundreds of EDCs throughout our lives.
- Like hormones, EDCs have health effects at tiny levels– at levels to which people are commonly exposed. Unless you test for EDC characteristics, you don't know if a chemical is safe.
- Exposure to EDCs during development can have lifelong, permanent health effects. But EDCs can also cause adverse effects throughout life.

Understanding what EDCs are and their effects will help guide smart policy.