

Harmful effects of endocrine disrupting chemicals (EDCs) and emerging contaminants affect organisms causing a wide range of developmental, reproductive, neurological, or metabolic effects in humans and wildlife. Water quality monitoring enables you to be able to act quickly if toxic levels of chemicals are present in water samples.

## Are Analytical Methods enough?

Traditional targeted analytical techniques rely on analyses of individual contaminants. However, real world exposure generally occurs as mixtures of different chemical compounds. This presents risks to humans and the environment from:

- chemicals without toxicity information
- the presence and concentrations of other compounds
- chemicals that work together to increase toxic potential

To understand the risk posed by complex samples, functional assays are needed to characterize cumulative effects of multiple contaminants on humans and other organisms.

## Functional Assays: The Next Wave in Evaluating Water Quality

Cell-based reporter assays such as those developed by INDIGO Biosciences screen for total bioactivity for a specific pathway of importance. They can detect the toxicity of unknown chemical pollutants and can account for their cumulative effects, simplifying the issues posed by complex mixtures in analytical methods. INDIGO has an extensive list of cell-based bioassays that are predictive of cellular toxicity pathways including endocrine disruption, altered xenobiotic metabolism, and adaptive stress responses. View INDIGO's list of available reporter assays on the reverse.



# Assay Kits for Environmental Toxicology

Prod #	Receptor	Prod #	Receptor
<b>ENDOCRINE DISRUPTION</b>			
EM03001	Androgen Receptor (AR)	EM00201	Glucocorticoid Receptor (GR)
EM00431	Estrogen Receptor (ER)	IB0500	Progesterone Receptor (PGR)
IB0040	Estrogen Receptor Alpha (ER $\alpha$ )	IB0100	Thyroid Hormone Receptor Alpha (TR $\alpha$ )
IB0041	Estrogen Receptor Beta (ER $\beta$ )		
<b>XENOBIOTIC METABOLISM</b>			
EM06001	Aryl Hydrocarbon Receptor (AhR)	IB0060	Farnesoid X Receptor (FXR)
IB0092	Constitutive Androstane Receptor-2	IB0700	Pregnane X Receptor (PXR)
IB0090	Constitutive Androstane Receptor-3	IB0070	Vitamin D Receptor (VDR)
<b>TOXICITY &amp; INFLAMMATION</b>			
IB2400	Activator Protein-1 (AP-1)	IB1000	Nuclear Factor (erythroid-derived 2)-like 2 (Nrf2)
IB0900	Nuclear Factor kappa-light-chain enhancer of activated B cells (NF $\kappa$ B)	IB2500	Tumor Protein p53 (p53)
IB1800	Nuclear Factor of Activated T cells (NFAT)		
<b>LIPID &amp; ENERGY METABOLISM</b>			
IB0011	Peroxisome Proliferator-Activated Receptor Alpha (PPAR $\alpha$ )	IB0030	Liver X Receptor Beta (LXR $\beta$ )
IB0012	Peroxisome Proliferator-Activated Receptor Beta (PPAR $\beta$ )	IB0080	Retinoid X Receptor Alpha (RXR $\alpha$ )
IB0010	Peroxisome Proliferator-Activated Receptor Gamma (PPAR $\gamma$ )	IB0110	Thyroid Hormone Receptor Beta (TR $\beta$ )
<b>BASAL METABOLISM &amp; CENTRAL NERVOUS SYSTEM</b>			
IB0031	Liver X Receptor Alpha (LXR $\alpha$ )	EM00501	Mineralocorticoid Receptor (MR)
IB0220	Retinoic Acid Receptor Alpha (RAR $\alpha$ )	IB0810	Retinoic X Receptor Beta (RXR $\beta$ )
IB0200	Retinoic Acid Receptor Gamma (RAR $\gamma$ )	IB0082	Retinoid Receptor Gamma (RXR $\gamma$ )

## Discover how bioassays are revolutionizing water quality assessment!

Discover how innovative testing methods are revolutionizing water quality assessment in the study "Priority Screening of Contaminants of Emerging Concern (CECs) in Surface Water: Comparing Cell-Based Bioassays and Exposure-Activity Ratios (EARs)."

This research evaluates surface water samples from Central Pennsylvania streams, analyzing 46 emerging contaminants—including pesticides, personal care products, and pharmaceuticals. By employing both chemical analyses and cell-based bioassays, the study identifies active contaminants and assesses their potential health risks.

This study underscores the importance of integrating bioassays with chemical analyses to enhance water quality monitoring and safeguard public health. For a deeper understanding of these methodologies and their implications, read the full paper.

