

December 15, 2023
Kumiai Chemical Industry Co., Ltd.

**Scientific literature on the evaluation of endocrine disruptors was selected
as a Key Scientific Article by Medicine Innovates**

Our scientific literature published in the Journal of Biochemical and Molecular Toxicology on April 3, 2023, was selected as a **Key Scientific Article** by Medicine Innovates.

Citation link: <https://click.pstmrk.it/3ts/medicineinnovates.com%2Fdecoding-bpas-impact-breast-cancer-investigating-progesterone-pathways-cellular-fate%2F/EXNh/j-axAQ/AQ/ded50a15-d5cc-43fe-b668-b604695485b8/1/ChDZzhpB8y>

Medicine Innovates, a Canadian non-profit organization, ensures that the results of excellent medical research are rapidly disseminated throughout the world, which conveys their significance for advancing scientific knowledge and promoting better health for humankind. **Key Scientific Article** is highly selective; the invited articles are less than 0.1% of the whole published paper (that is, 20 per week chosen by a team of advisers and experts).

The research was conducted as basic research for the development of innovative technologies as stated in the “Strategy for Sustainable Food Systems, MIDORI” in Japan. According to Medicine Innovates, our study is available for not only the safety evaluation of pesticides and agrochemicals but also the drug screening of breast cancer, and the implications of this research are highlighting the importance of considering environmental factors in cancer biology and treatment.

We will continue to utilize the results of this research to develop safe pesticides and agrochemicals.

<Highlighted article>

- OGAWA Masahiro, KITAMOTO Junya, TAKEDA Takeo, TERADA Megumi (2023) “Bisphenol A prevents MCF-7 breast cell apoptosis via the inhibition of progesterone receptor transactivation” Journal of Biochemical and Molecular Toxicology, 37(7), e23367. doi:10.1002/jbt.23367.

<Overview>

Endocrine disruptors are evaluated internationally, but the test systems for progesterone disruption have not been developed as much as other endocrine disrupting compounds.

In the collaborative research between Osaka Metropolitan University (formerly Osaka Prefecture University) and our laboratory, we have previously found that bisphenol A, a material for plastic products, has the inhibitory effect on progesterone receptors (OGAWA Masahiro *et al.*, 2021). However, the effects of bisphenol A on the function of progesterone receptor remain unclear. Therefore, we established the evaluation test for progesterone receptor using a human breast cancer-derived MCF-7 cell line. We also investigated the effect of bisphenol A on the function of progesterone receptors.

We have demonstrated a novel mechanism of toxicity by which bisphenol A inhibits progesterone receptor signaling.

<Explanation of terms>

1. Endocrine disruptor

An endocrine disruptor is an exogenous substance or mixture that alters function(s) of the endocrine system and consequently causes adverse health effects in an intact organism, or its progeny, or (sub)populations (WHO/IPCS, 2002).

2. Progesterone

Progesterone is one of the female hormones secreted by the ovaries.

<Reference>

- OGAWA Masahiro, ITO-HARASHIMA Sayoko, KITAMOTO Junya, KYOYA Takahiro, TERADA Megumi, KAWANISHI Masanobu, YAGI Takashi (2021) “Application of a Battery of Sex Steroid-Responsive Reporter Yeasts for the Detection of Sex Hormone-Disrupting Chemicals” *Applied In Vitro Toxicology*, 7(1), 14-23. doi.org/10.1089/aivt.2020.0016.

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