

## Screening and Exploration of New Biomarkers for Thyroid-Hormone-Receptor Binding Chemicals

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[Abstract]

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Ministry of the Environment has encouraged to specify a substance that is required a risk management, seek an unknown substance and figure out their disposition on EXTEND 2016 and Japan Environment and Children's Study (JECS). An evaluation of the effects on exposure of chemical substances and environmental factors such as a life environment is necessary for children's health and development as they are supposed to be particularly vulnerable.

This study, which may contribute to EXTEND 2016 and JECS, constructed an innovational screening technique that can evaluate binding activity of receptors through only the result of chemical analysis using thyroid hormone receptors (TR) that has a large number of reports on information of receptor structures. We developed the assessment technique of TR binding activity using a method of like chromatography with a TR imitated separation medium as an aim to establish the screening technique of TR binding activity. Then we created a database for TR binding active compounds with the combination of its technique, yeast assay and an accurate mass analysis. Furthermore, identifying substances of TR activity contribution in environmental analytes, we revealed disposition of compounds through animal experiments.

This study makes possible an application for not only TR but also chemical substances having a lot of receptor binding activity, opening the door to acquisition of academic perceptions such as a resolution for physiological mechanisms. We anticipate that it can apply for observation of environmental chemicals from home and abroad as the screening measurement that would be widely used in the future.

[References]

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