

Accepted Manuscript

Evaluation of the early developmental neural toxicity of F-53B, as compared to PFOS, with an *in vitro* mouse stem cell differentiation model

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PII: S0045-6535(18)30649-0

DOI: [10.1016/j.chemosphere.2018.04.011](https://doi.org/10.1016/j.chemosphere.2018.04.011)

Reference: CHEM 21159

To appear in: *ECSN*

Received Date: 28 January 2018

Revised Date: 2 April 2018

Accepted Date: 3 April 2018

Please cite this article as: Yin, N., Yang, R., Liang, S., Liang, S., Hu, B., Ruan, T., Faiola, F., Evaluation of the early developmental neural toxicity of F-53B, as compared to PFOS, with an *in vitro* mouse stem cell differentiation model, *Chemosphere* (2018), doi: 10.1016/j.chemosphere.2018.04.011.

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1 **Evaluation of the early developmental neural toxicity of F-53B, as compared to PFOS, with**
2 **an *in vitro* mouse stem cell differentiation model**

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13
14 **Abstract**

15 F-53B, as an alternative to the persistent organic pollutant perfluorooctane sulfonate (PFOS), is
16 amply used in the electric plating industry. F-53B and PFOS have similar physicochemical,
17 biochemical and physiological properties, due to the similarity in their chemical structure. Thus,
18 they may also possess similar toxicities. Although epidemiological studies and *in vivo* assays have
19 shown that prenatal exposure to PFOS may impair the development of the nervous system,
20 toxicity data for F-53B are still scarce. In this study, we employed an embryonic stem cell (ESC)
21 *in vitro* differentiation system, for detection of the potential developmental neural toxicity of
22 F-53B and PFOS, at human exposure relevant doses. We demonstrated that during early mouse

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