

Accepted Manuscript

Title: Fundamental studies of adrenal retinoid-X-receptor: Protein isoform, tissue expression, subcellular distribution, and ligand availability

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PII: S0960-0760(17)30067-5
DOI: <http://dx.doi.org/doi:10.1016/j.jsbmb.2017.03.002>
Reference: SBMB 4902

To appear in: *Journal of Steroid Biochemistry & Molecular Biology*

Received date: 27-10-2016
Revised date: 14-2-2017
Accepted date: 2-3-2017

Please cite this article as: Behling Cheng, Fatema H. Al-Shammari, Isra'a A. Ghader, Fatima Sequeira, Jitendra Thakkar, Thazhumpal C. Mathew, Fundamental studies of adrenal retinoid-X-receptor: Protein isoform, tissue expression, subcellular distribution, and ligand availability, *Journal of Steroid Biochemistry and Molecular Biology* <http://dx.doi.org/10.1016/j.jsbmb.2017.03.002>

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FUNDAMENTAL STUDIES OF ADRENAL RETINOID-X-RECEPTOR: PROTEIN ISOFORM, TISSUE EXPRESSION, SUBCELLULAR DISTRIBUTION, AND LIGAND AVAILABILITY

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Highlights:

- Analysis of rat adrenal proteins revealed RXR α and RXR β , but not RXR γ .
- RXR α resides in nucleus; RXR β was localized in nucleus and post-nuclear particles.
- Adrenal ZF and medulla express more RXR α , whereas ZG expresses more RXR β .
- LC/MS analysis did not detect the potent RXR-agonist 9-cis-retinoic acid.
- RXR-agonizing polyunsaturated fatty acids exist in each subcellular fraction.

ABSTRACT

Adrenal gland reportedly expresses many nuclear receptors that are known to heterodimerize with retinoid-X-receptor (RXR) for functions, but the information regarding the glandular RXR is not adequate. Studies of rat adrenal homogenate by Western blotting revealed three RXR proteins: RXR α (55 kDa), RXR β (47 kDa) and RXR (56 kDa). RXR γ was not detectable. After fractionation, RXR α was almost exclusively localized in the nuclear fraction. In comparison, substantial portions of RXR β and RXR were found in both nuclear and post-nuclear particle fractions, suggesting genomic and non-genomic functions. Cells immunostained for RXR α were primarily localized in zona fasciculata (ZF) and medulla, although some stained cells were found in zona glomerulosa (ZG) and zona reticularis (ZR).

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