## Supplementary information

# Ternary crystal structure of human $ROR\gamma$ ligand-binding-domain, an inhibitor and corepressor peptide provides a new insight into corepressor interaction

#### Authors:

Masato Noguchi<sup>1\*</sup>, Akihiro Nomura<sup>1</sup>, Satoki Doi<sup>1</sup>, Keishi Yamaguchi<sup>1</sup>, Kazuyuki Hirata<sup>2</sup>, Makoto Shiozaki<sup>2</sup>, Katsuya Maeda<sup>2</sup>, Shintaro Hirashima<sup>2</sup>, Masayuki Kotoku<sup>2</sup>, Takayuki Yamaguchi<sup>3</sup>, Yoshiaki Katsuda<sup>3</sup>, Paul Crowe<sup>4</sup>, Haiyan Tao<sup>4</sup>, Scott Thacher<sup>4</sup> and Tsuyoshi Adachi<sup>1\*</sup>

#### Affiliations:

<sup>1</sup> Pharmaceutical Frontier Research Laboratories, Central Pharmaceutical Research Institute, Japan Tobacco Inc., 1-13-2, Fukuura, Kanazawa-Ku, Yokohama Kanagawa, 236-0004, Japan

<sup>2</sup> Chemical Research Laboratories, Central Pharmaceutical Research Institute, Japan Tobacco Inc., 1-1, Murasaki-cho, Takatsuki Osaka, 569-1125, Japan

<sup>3</sup> Biological Pharmacological Research Laboratories, Central Pharmaceutical Research Institute, Japan Tobacco Inc., 1-1, Murasaki-cho, Takatsuki Osaka, 569-1125, Japan

<sup>4</sup> Orphagen Pharmaceuticals, 11558 Sorrento Valley Road, Suite 4, San Diego, California, 92121, United States

\*Correspondence should be addressed to M.N. (masato.noguchi@jt.com) or T.A. (tsuyoshi.adachi@jt.com) Masato Noguchi and Akihiro Nomura contributed equally to this work.

### **Supplementary Figures**

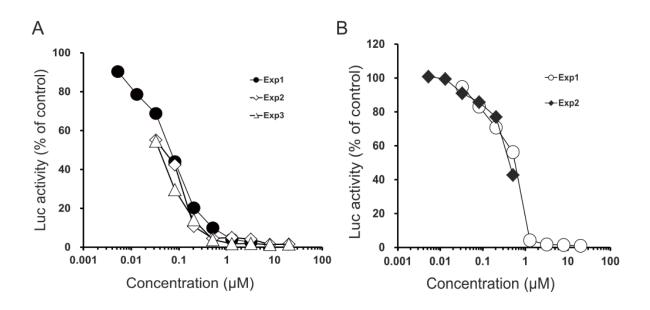
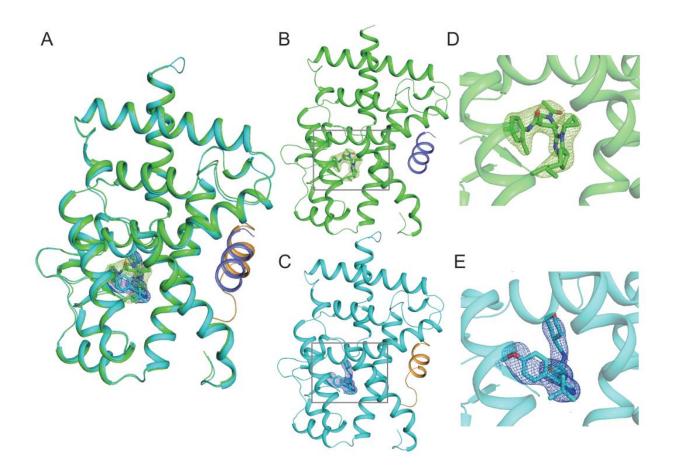


Figure S1. Inverse agonist activities in LUC reporter assay.

(A) Three independent experiments of inhibitory activity of compound A are overlaid.

(B) Two independent experiments of inhibitory activity of compound T are overlaid.

High-reproducibility was observed in LUC assay system.



**Figure S2**. The ternary complexes of the RORγ-LBD containing compounds and SMRT22 corepressor (CoR) peptide.

(A) Superimposition of the ternary complex RORγ-LBD/compound A/CoR peptide (RORγ in *green*, CoR in *blue*) to that of RORγ-LBD/compound T/CoR peptide (RORγ in *cyan*, CoR in *camel*). Electron density maps (*mFo-DFc*) of compounds are shown at 1σ.
(B)(C) Ternary complexes of RORγ-LBD/compound A/CoR peptide and RORγ-LBD

/compound T/CoR peptide, respectively.

(D)(E) Close up views of squares in panel B and C, respectively.