## **Description of Additional Supplementary Files**

File name: Supplementary Data 1

**Description:** The known drug-ADR interactions in the benchmark dataset.

**File name:** Supplementary Data 2

**Description:** The seriousness classes of serious drug-ADR interactions in the benchmark

dataset.

File name: Supplementary Data 3

**Description**: An independent test dataset from SIDER database.

File name: Supplementary Data 4

**Description:** An independent test dataset from OFFSIDES database.

File name: Supplementary Data 5

**Description:** The SMILES sequences of the drugs in the benchmark dataset.

**File name:** Supplementary Data 6

**Description:** The semantic descriptors of ADRs in the benchmark dataset.