Contents

[**Literature review** 1](#_Toc141222841)

[**Feature Selection** 1](#_Toc141222842)

[**Data gathering** 1](#_Toc141222843)

[**Future work/improvements** 1](#_Toc141222844)

**GOOD RECENT REFERENCE FOR STEPPING INTO ADR PREDICTION**

<https://academic.oup.com/bib/article/22/2/1884/5826453>

# **Literature review**

Factors effecting ADR’s

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3950535/#:~:text=Pharmacological%2C%20immunological%2C%20and%20genetic%20factors,pharmacodynamic%20abnormalities%2C%20and%20drug%20interactions>.

This talks about using SVM for ADR prediction, with a small dataset

<https://academic.oup.com/jamia/article/19/e1/e28/2909247>

This talks about LSTM for ADR prediction

<https://link.springer.com/article/10.1007/s10489-022-03721-y>

Recent study on ADR prediction for babies

<https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4462705>

Talks about the SIDER dataset, and stacking models, good for reasoning why I decided to build a model with a hybrid architecture

<https://www.spiedigitallibrary.org/conference-proceedings-of-spie/12636/126360D/Adverse-drug-reaction-prediction-and-feature-importance-mining-based-on/10.1117/12.2675459.short?SSO=1>

Hybrid model case study

<https://onlinelibrary.wiley.com/doi/full/10.1002/int.22389?casa_token=wFyukhmhKR8AAAAA%3AaUR1UKic6M0-KVysyeR4GLpuOiXFWigvZcZqZj7NjjfEAqrPDx_a2ACmI1_2PfPC-Ux2tuEtRdScx6rU>

***“In the future, to improve the accuracy of ADRs prediction, the proposed model can be run on much larger data sets of different sizes to test the scalability of the model. Other types of drug information, such as chemical–protein binding and drug effectiveness, can be incorporated to enhance the robustness of the model. Different configurations of the model can be further investigated to improve the prediction accuracy, which may contribute significantly to the science of pharmacovigilance and hence expedite the drug discovery process.”***

<https://onlinelibrary.wiley.com/doi/full/10.1002/int.22389?casa_token=Am9uxa3V13YAAAAA%3AV6m1iPOxu2L4-860lHR4LLNMuBCTihblvT2TL_UFiyulqyFuhx7-nc9M_51gBGUKcNxxRvqE64LI9JVo>

Has information on Random Forest and SVM, with number comparisons for accuracy with death prediction from ADR’s

<https://ieeexplore.ieee.org/abstract/document/8629806?casa_token=uzpM1-Bp32wAAAAA:agZ6WqN5cl5fJnZNONd-PRp388m2L2vyIDaoTaAD5BVcY00UBP05qzN2byGtt1fZcSq1yd8ZvvNQ>

# **Feature Selection**

Talks about what features are important for ADR prediction

<https://academic.oup.com/jamia/article/19/e1/e28/2909247>

# **Data gathering**

SIDER was specifically extracted from FAERS for single drug ADR’s, also talks about alternative ADR datasets. Also talks about drug descriptors, and has a useful diagram.

<https://academic.oup.com/bib/article/22/1/164/5678053>

Talks specifically about SIDER being best for side effect data in comparison to other datasets

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4702794/>

Uses SIDER, PubChem and Drugbank

<https://academic.oup.com/jamia/article/19/e1/e28/2909247>

# **Future work/improvements**

This paper suggest ADR prediction for treatments with multiple drugs – polypharmacy

<https://academic.oup.com/bib/article/22/1/164/5678053>

Talks more about polypharmacy

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3950535/#:~:text=Pharmacological%2C%20immunological%2C%20and%20genetic%20factors,pharmacodynamic%20abnormalities%2C%20and%20drug%20interactions>.