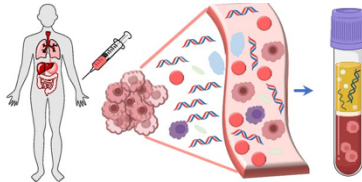


# ClinicalEarlyCancerDF

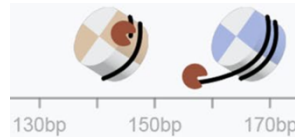


**Non-invasive Liquid biopsy (NLB)**

Methylation

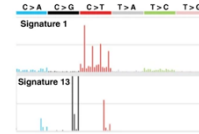


Fragmentation

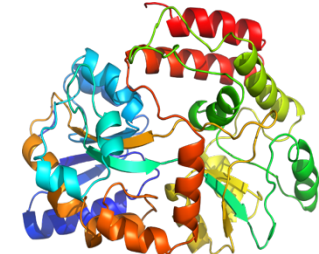


**Cell-free DNA**

Mutation Signatures

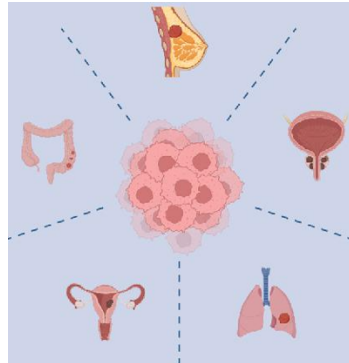


Copy number variants



**Protein biomarkers**

**Data preprocessing and features selection**



**Cancer localization**

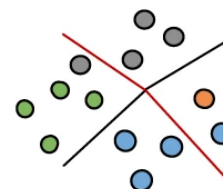


**Cancer patients**



**Healthy controls**

Ensemble optimized learning framework (EOLF)



**Machine Learning Model**