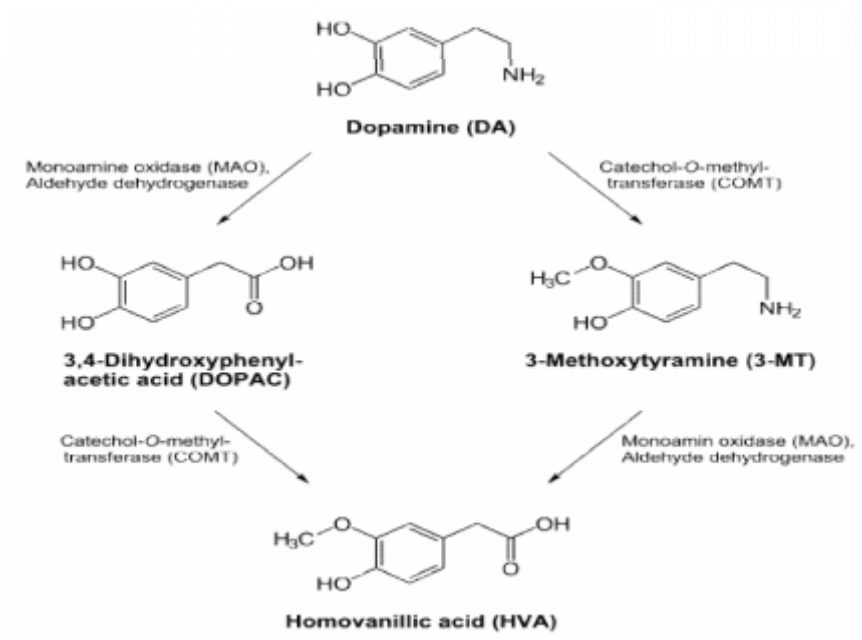
Dopa-homometer

Dopa-homometer is use for detection of homovanillic acid in urine sample which is major metabolite of dopamine. It is important to measure dopamine content in normal or Schizophrenic/depression patient for identifying diseased state**.**

Analyte : When person has schizophrenia, dopamine content is higher. So, it is metabolised by MAO and excrete more homovanillic acid in urine. This homovanillic acid is measured using this simple detector.

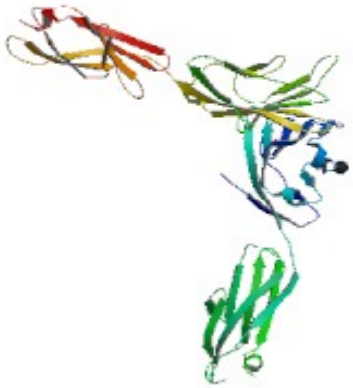


Bioreceptor: Crystal stucture of NTB-A protein has chain A,B,C,D and chain D has higher affinity to bind with homovanillic acid.

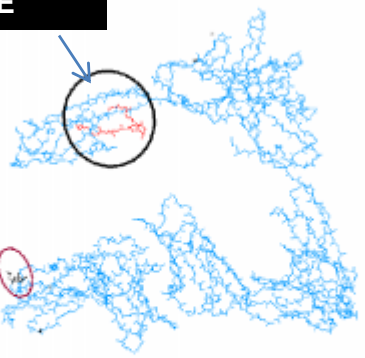
Transducer: By SAM method, the $-NH_2$ group of NTB-A is immobilized on –COOH group of alkyl thiol on the gold surface. The SPR is used as tranducer which gives a signal .

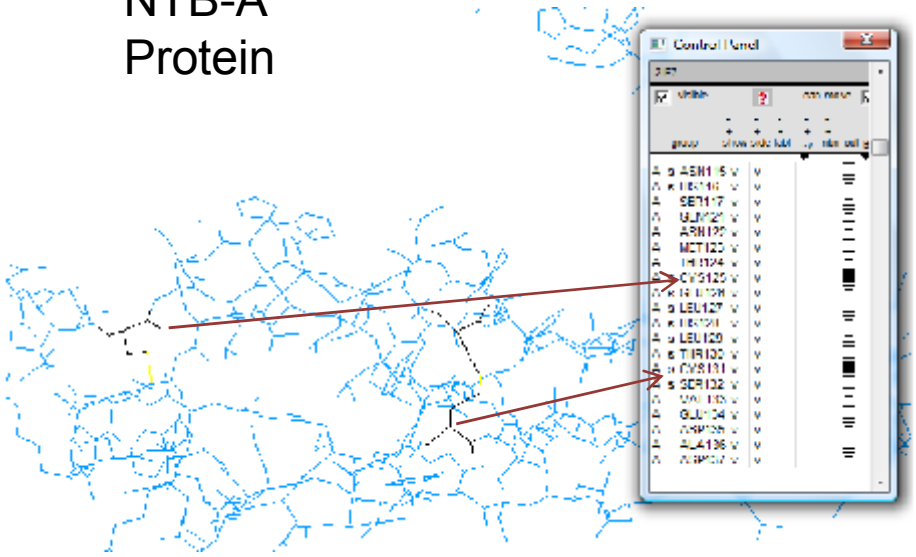
Processor : Protein and homovanillic acid complex which gives a signal. Using this signal, we can identify dopamine content in person.

IMMOBILIZATION OF PROTEIN ON GOLD SURFACE

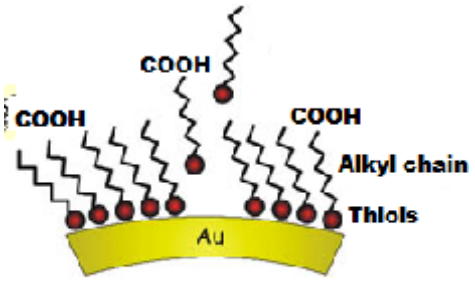


NTB-A
Protein

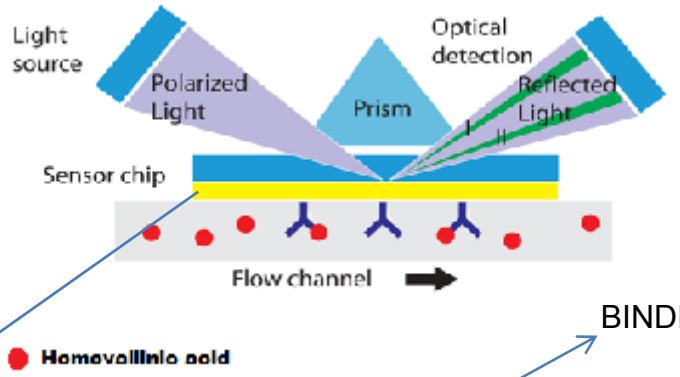


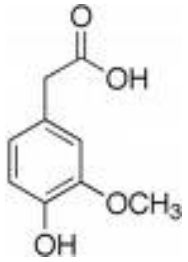


$$R\text{-}COOH + R\text{-}NH_2 \longrightarrow R\text{-}CONH_2 + R\text{-}OH$$



SUMMARY OF DOPA-HOMOMETER

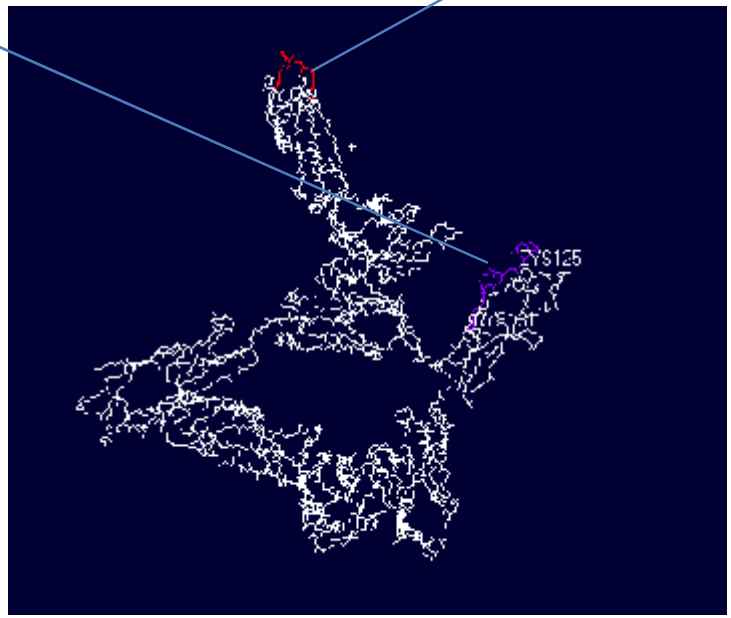




Homovanillic acid from urine sample

BINDING SITE

IMMOBILIZING SITE



PROCESSOR/ OUTPUT