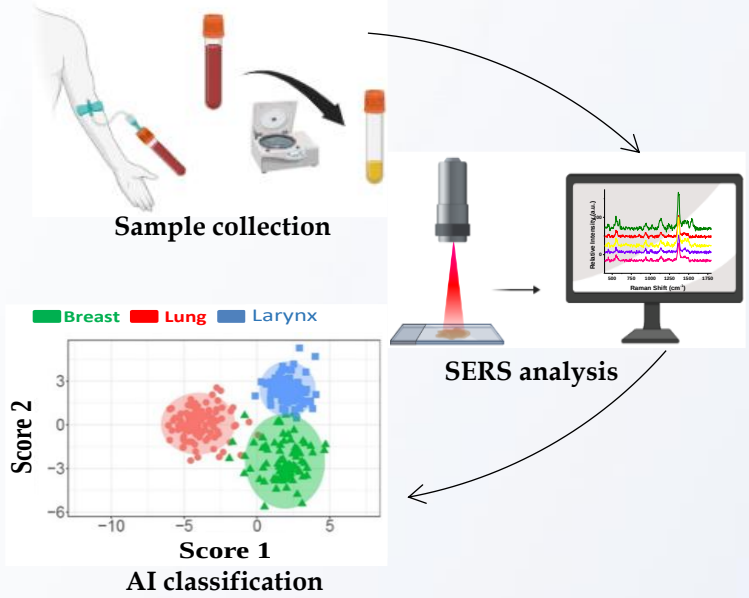
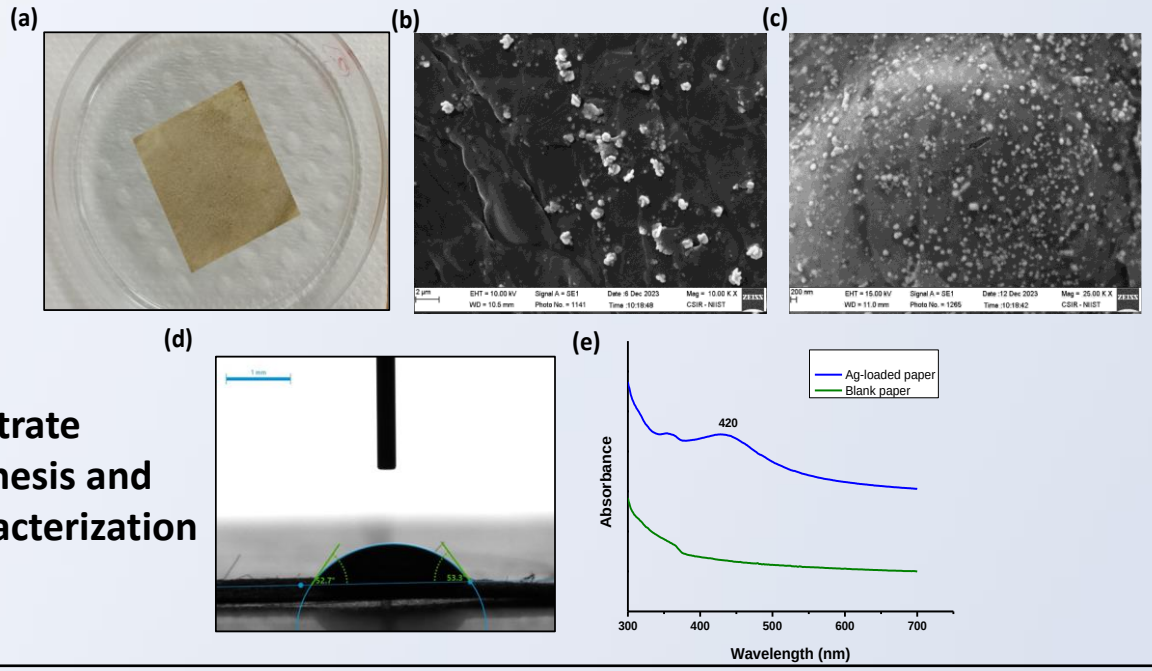
# Global cancer classification

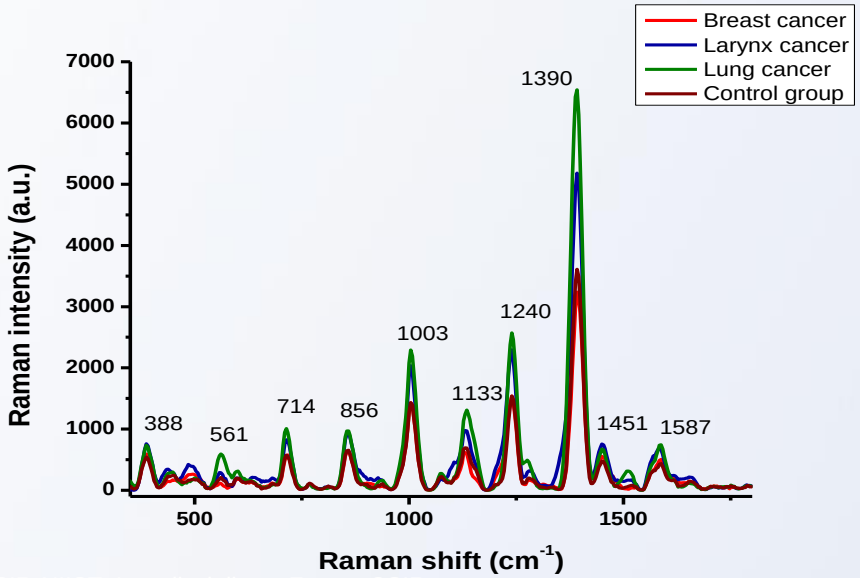
## Work flow




## Substrate synthesis and characterization




## SERS spectra of respective sample categories




## AI classification

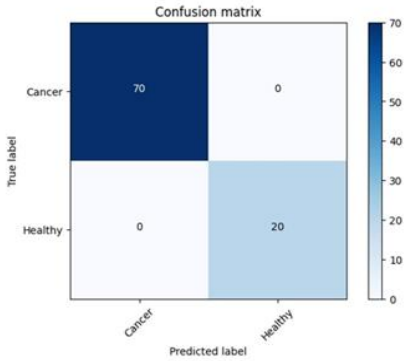
**Performance Matrix of Cancer vs Healthy**

| | precision | recall | f1-score | support |
|---|---|---|---|---|
| 0 | 1.00 | 1.00 | 1.00 | 70 |
| 1 | 1.00 | 1.00 | 1.00 | 20 |
| accuracy | | | 1.00 | 90 |
| macro avg | 1.00 | 1.00 | 1.00 | 90 |
| weighted avg | 1.00 | 1.00 | 1.00 | 90 |

**Performance Matrix for Different Types of Cancers**

| | precision | recall | f1-score | support |
|---|---|---|---|---|
| 0 | 0.79 | 1.00 | 0.88 | 30 |
| 1 | 1.00 | 0.80 | 0.89 | 20 |
| 2 | 0.75 | 0.60 | 0.67 | 20 |
| accuracy | | | 0.83 | 70 |
| macro avg | 0.85 | 0.80 | 0.81 | 70 |
| weighted avg | 0.84 | 0.83 | 0.82 | 70 |

**Confusion Matrix for Cancer vs Healthy Classification**

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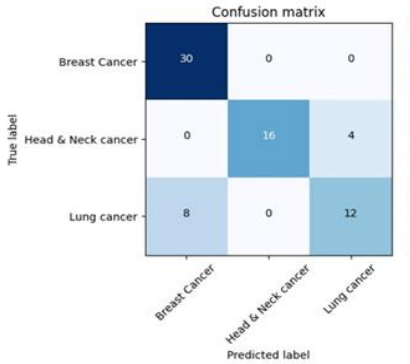
**Confusion Matrix for Cancer Type Classification**

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