

Supplementary Material

Table S1. Raman Spectroscopy Studies on Cervical Cells for Cervical Cancer Diagnosis.

Authors	Year	Type of sample	n sample	Contribution
Krishna CM, et al., [41]	2007	Formalin fixed cervical tissues Laser line: 785 nm	9 normal, 9 stage IIIB malignant, 9 after radiation	Spectral differences in malignant vs normal cervical tissues
Rubina Shaik. et al., [42]	2013	Cervix tissue Laser line: 785 nm	11 normal cervices 16 tumor tissues 13 tumor respondents to radiation tissue	Raman Spectroscopy Studies on Cervical Cells for Cervical Cancer Diagnosis Differences normal vs tumor in amide I and amide III region. Sensitivity 73.6% Specificity 92.5%
Rubina Shaik. et al., [18]	2013	Exfoliated cell pellets Laser line: 785 nm	17/28 normal 20/29 cancer	Classification efficiency 90% / 84.5% abnormal tissue Classification efficiency after RBC lysis treatment 79.3 / 78.7% abnormal tissue
Rubina Shaik. et al., [43]	2017	In vivo cervical tissue Laser line: 785 nm	20 cervical tumor 6 normal	Sensitivity 91% Specificity 96% Positive predictive value 95% Negative predictive value 93%
Kearney P. et al. [24]	2017	Cervical exfoliation individual cells Laser line: 532 nm	20 healthy and 50 HSIL	Raman spectral signatures Sensitivity of 92% Specificity of 97%
Traynor D. et al. [19]	2018	Cervical exfoliation individual cells Laser line: 532 nm	15 healthy and 15 HSIL	Sensitivity 92% Specificity 93% For samples with no blood contamination Treatment to remove the blood of samples
Zheng C. et al. [40]	2019	Cervical Tissue Laser line: 532 nm	45 Adenocarcinoma 50 squamous cell carcinoma tissues	The precision of 93.125% in differentiation between the two types of cervical cancer
Karunakaran et al., [24]	2020	SiHa cells Cervical exfoliated single cells Laser line: 633 nm	CIN 1 CIN 2 CIN 3	AuNP 40-45 nm Average diagnostic accuracy of 94%, 74% and 92% of the three clinical grades

Ceja-Fdez. Et al., . [23]	2021	Formalin-fixed paraffin preserved (FFPP) cervical tissue samples Laser line: 785 nm	5 CIN1 5 CIN2 5 CIN 3	Cervical tissue + AuNP 13 nm SERS Spectral differences between carcinoma vs HPV infection
Karunakaran et al., [25]	2021	SiHa cells Wi38 cells Cervical exfoliated single cells Laser line: 633 nm	3 CIN2 3 CIN 3 3 normal	SERS nanotag for the simultaneous detection of biomarkers persisting in the progression of squamous cell carcinoma of human cervix
Current work	2022	Cervical exfoliation Spectra of cytoplasm and nucleus of individual cells. Laser line: 532 nm	81 sample, Healthy, and cervical lesions (CIN1, CIN2, CIN3/CIS)	Classification Efficiency 76.5% and 82.7% (cytoplasm and nucleus) Raman Spectra from Individual cells of patient's samples Sensitivity (84.6%)