Electronic Supplementary Material (ESI) for Analytical Methods.

Figure S1. Met-genomic Profiles (STAMP) were used for statistical analysis. Of these, Area 1 (973-1033 cm^{-1}), Area 2 (1119-1187 cm^{-1}), Area 4 (1481-1550 cm^{-1}), Area 5 (1642-1698 cm^{-1}) and Area 6 (2841-3012 cm^{-1}) were significantly dissimilar between the CM group (red) and the normal group (blue). The P-value for Area 3 (1432-1481 cm^{-1}) stands at 0.885. Left-hand histogram indicated the average scale of Raman spectral features. The dotted plot in the right-hand side indicated the difference between two specific Raman spectra, and the P-value indicated the mean proportional difference between groups.

Figure S2. Met-genomic Profiles (STAMP) were used for statistical analysis. FWHM 2 (1119-1187 cm^{-1}), FWHM 3 (1432-1481 cm^{-1}), FWHM 4 (1481-1550 cm^{-1}), FWHM 5 (1642-1698 cm^{-1}), and FWHM 6 (2841-3012 cm^{-1}) have marked variability between CM (red) and normal (blue). The P-value for FWHM 1 (973-1033 cm^{-1}) stands at 0.844. The dot plot on the right indicates the difference between two specific Raman spectra, and the P-value indicates the mean scale difference between groups.

Figure S3. Spearman correlation analysis was used to evaluate the correlation between the clinical samples and the laboratory-acquired Raman spectra. The 12 Raman spectral features and CM tumor volumes acquired within the testing period are included. The circular boxes emphasize the correlation coefficients between Raman spectral features and CM tumor volumes. The findings indicated that Raman spectroscopy has the capability to describe the biological fingerprint of CM and has the possibility to be used for clinical assessment to predict the size of tumor entities, with further investigation and data exploitation to be continued in subsequent analyses.

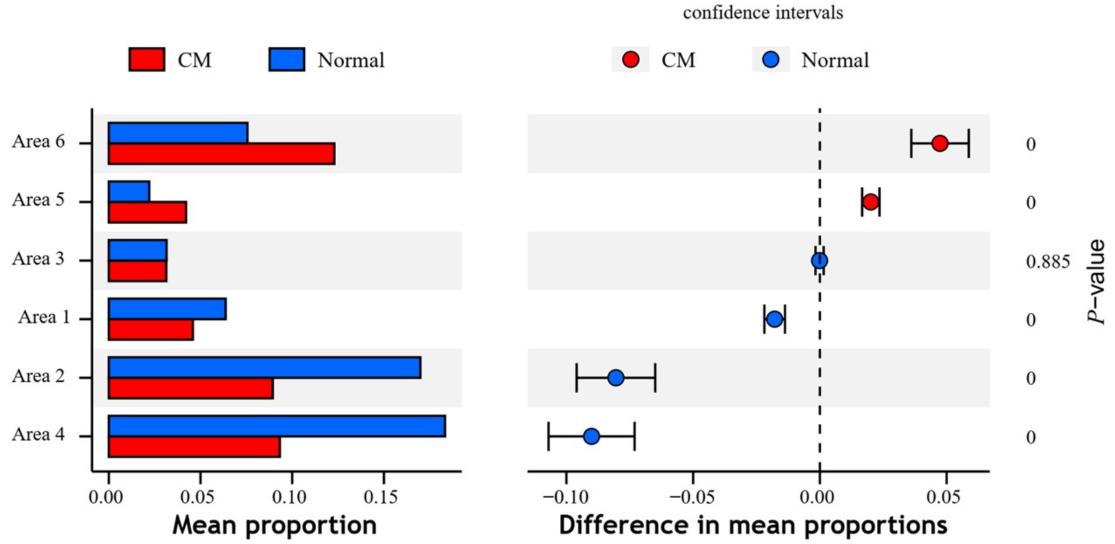

confidence intervals
CM
Normal
Area 6
Area 5
Area 3
Area 1
Area 2
Area 4
0.00
0.05
0.10
0.15
Mean proportion
−0.10
−0.05
0.00
0.05
Difference in mean proportions
0
0
0.885
0
0
0
P−value

Figure S1

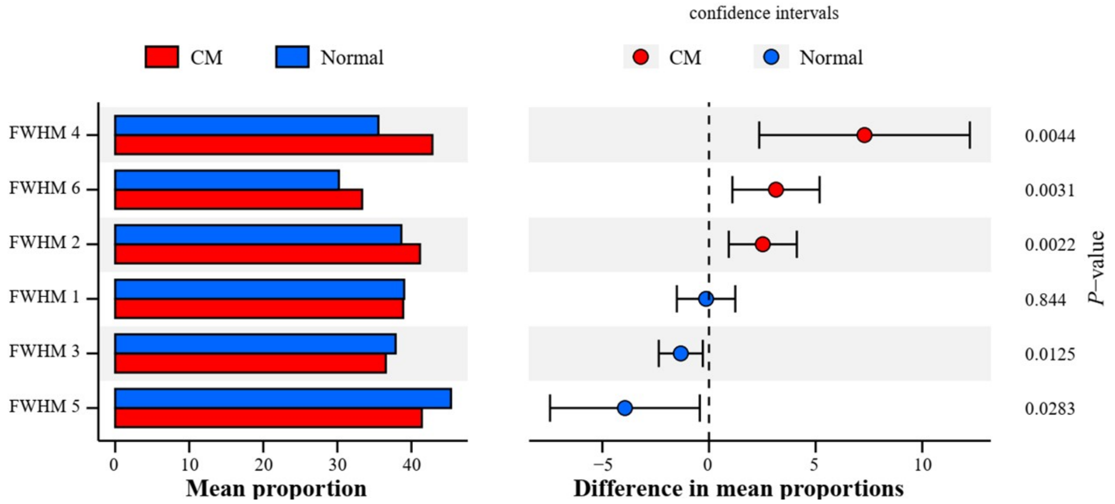
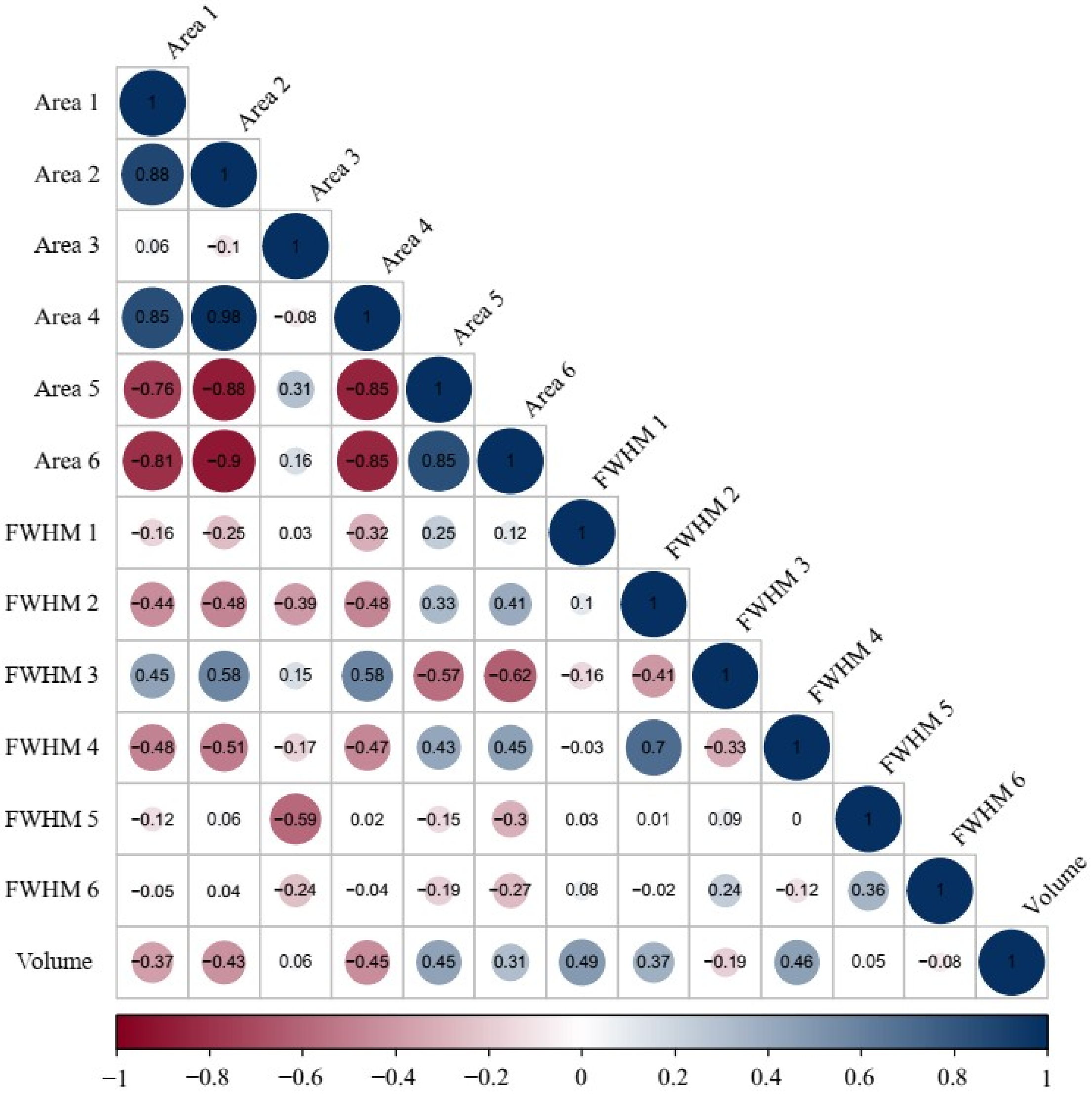

confidence intervals
CM
Normal
CM
Normal
FWHM 4
FWHM 6
FWHM 2
FWHM 1
FWHM 3
FWHM 5
0
10
20
30
40
Mean proportion
−5
0
5
10
Difference in mean proportions
0.0044
0.0031
0.0022
0.844
0.0125
0.0283
P−value

Figure S2



	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	FWHM 1	FWHM 2	FWHM 3	FWHM 4	FWHM 5	FWHM 6	Volume
Area 1	1												
Area 2	0.88	1											
Area 3	0.06	−0.1	1										
Area 4	0.85	0.98	−0.08	1									
Area 5	−0.76	−0.88	0.31	−0.85	1								
Area 6	−0.81	−0.9	0.16	−0.85	0.85	1							
FWHM 1	−0.16	−0.25	0.03	−0.32	0.25	0.12	1						
FWHM 2	−0.44	−0.48	−0.39	−0.48	0.33	0.41	0.1	1					
FWHM 3	0.45	0.58	0.15	0.58	−0.57	−0.62	−0.16	−0.41	1				
FWHM 4	−0.48	−0.51	−0.17	−0.47	0.43	0.45	−0.03	0.7	−0.33	1			
FWHM 5	−0.12	0.06	−0.59	0.02	−0.15	−0.3	0.03	0.01	0.09	0	1		
FWHM 6	−0.05	0.04	−0.24	−0.04	−0.19	−0.27	0.08	−0.02	0.24	−0.12	0.36	1	
Volume	−0.37	−0.43	0.06	−0.45	0.45	0.31	0.49	0.37	−0.19	0.46	0.05	−0.08	1

Figure S3