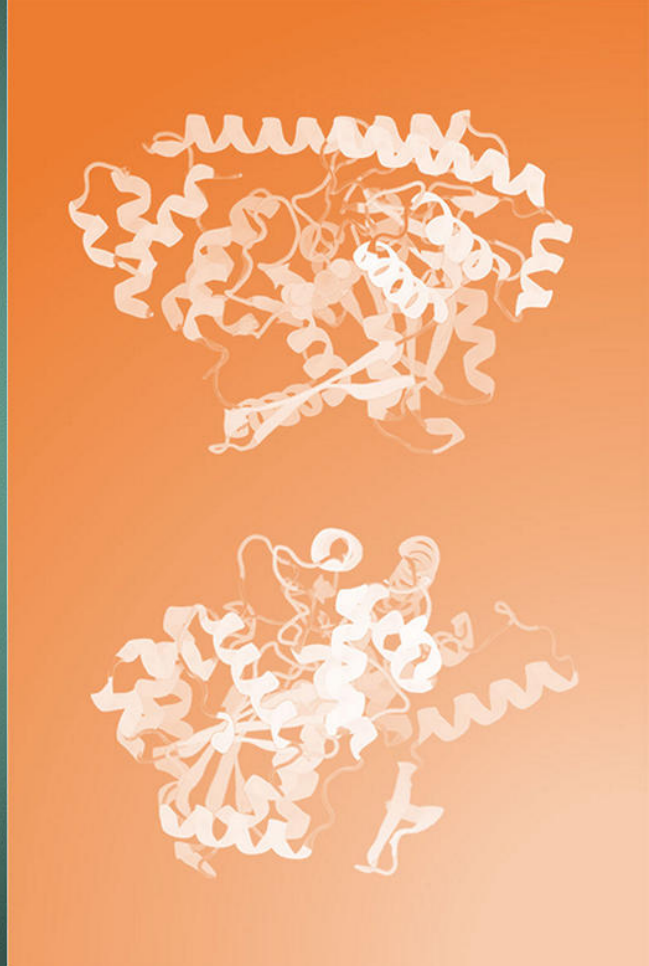




Application Note AN-RA-008

電気化学SERS効果による酵素の簡易検出法

(SERS)638 nm

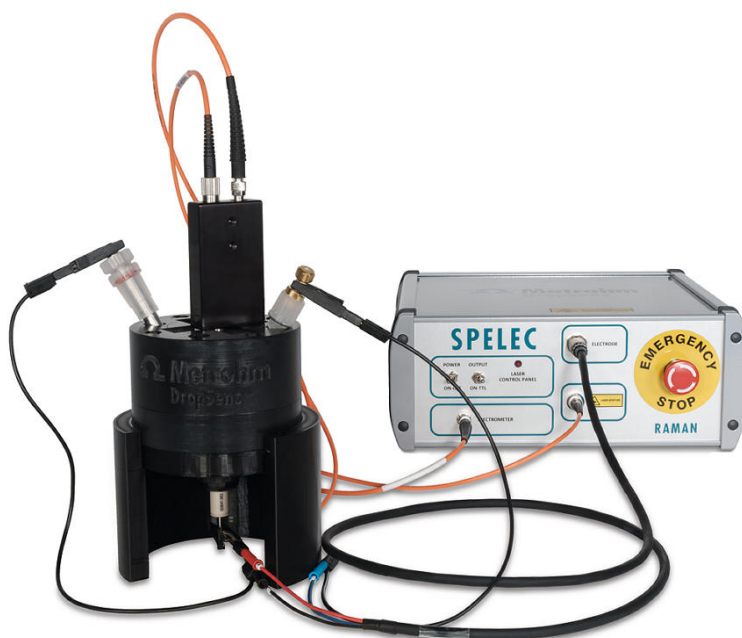
c

SPELEC RAMAN 638(638 nm)(1a)(1b)

a)



b)



1. SPELEC RAMAN 638ab

(Ag SPE013)SERS(6.09395.044)(6.0343.110)
Ag/AgCl(6.0728.120)SERS

SPELEC RAMAN 638DropView SPELEC1

1.

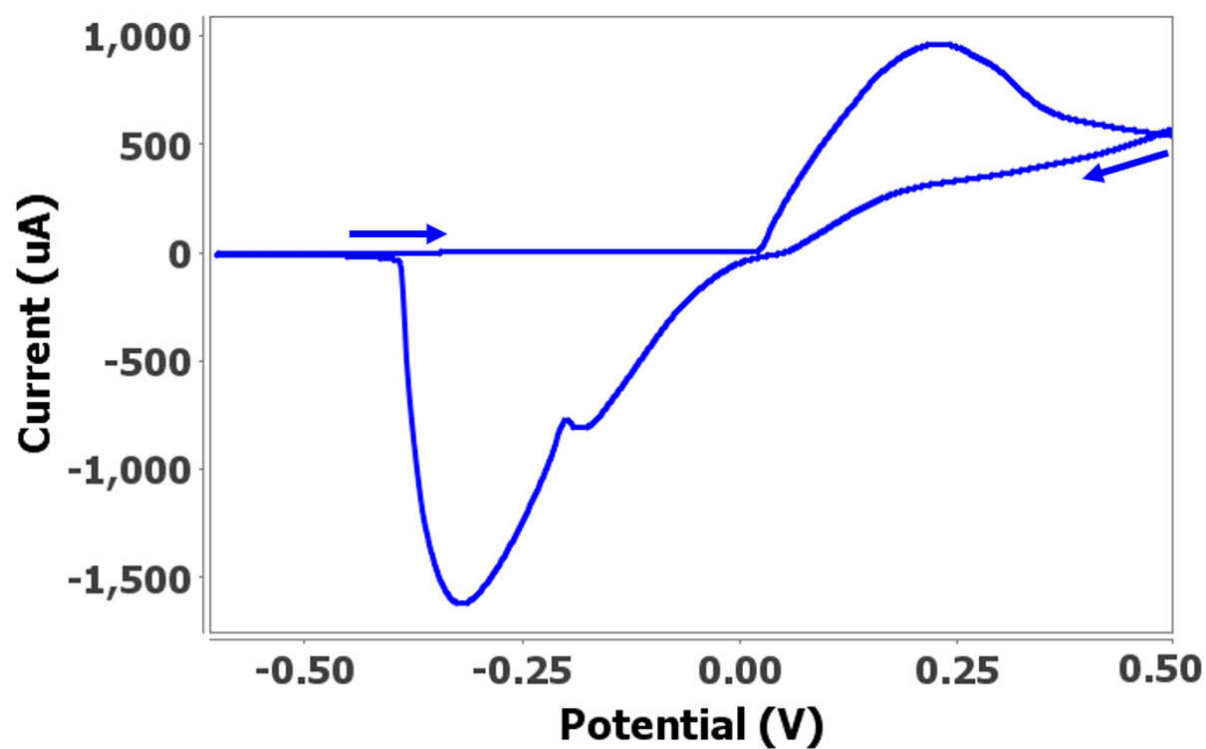
	SPELECRAMAN638
	RAMANPROBE638
SPE	RAMANCELL
	RAMANCELL-C
SPE	C013
SPE	CAST
	6.09395.044
	6.0343.110
Ag/AgCl	6.0728.120
	CABSTAT
	DropView SPELEC

EC-SERS

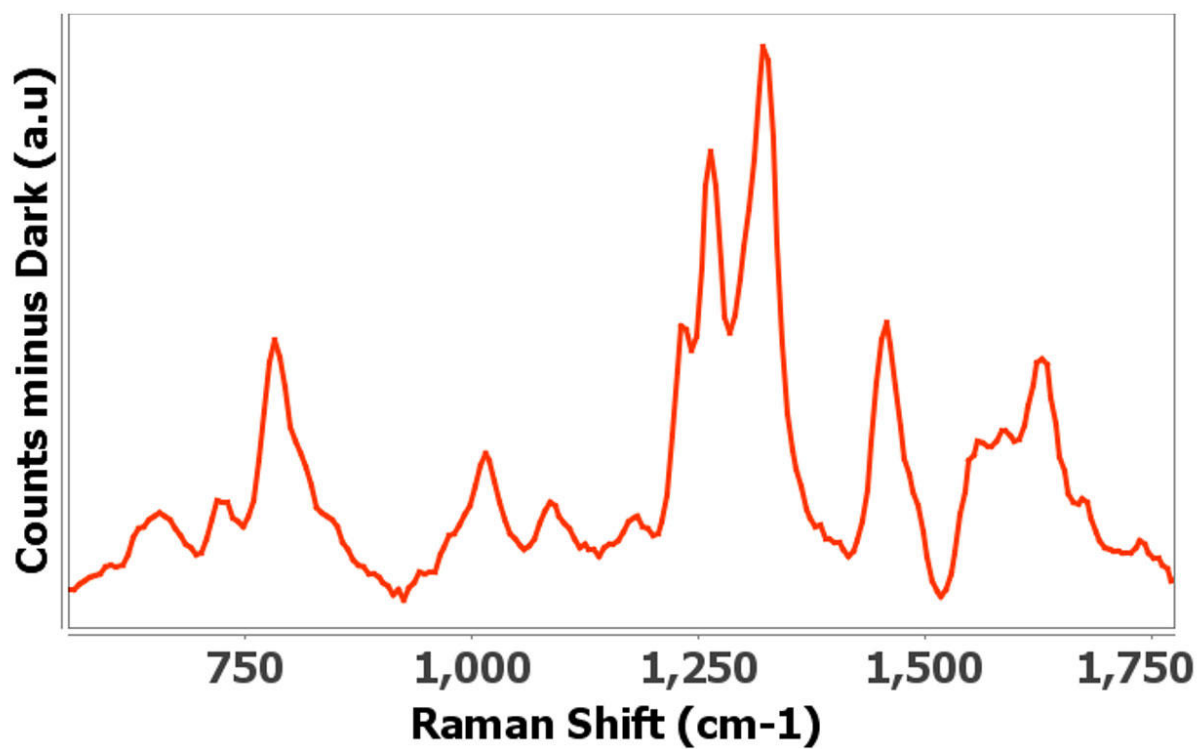
(ALDH)SERS(EC-SERS)12Ag SPESERS
+0.50 V -0.60 V SERS(ALDH)SERS[1]
SPELEC RAMAN 638

2aALDH**2b**ALDH0.1 mol/L KCl1 mg/mL ALDH**2b**-
0.50 V

a)



b)



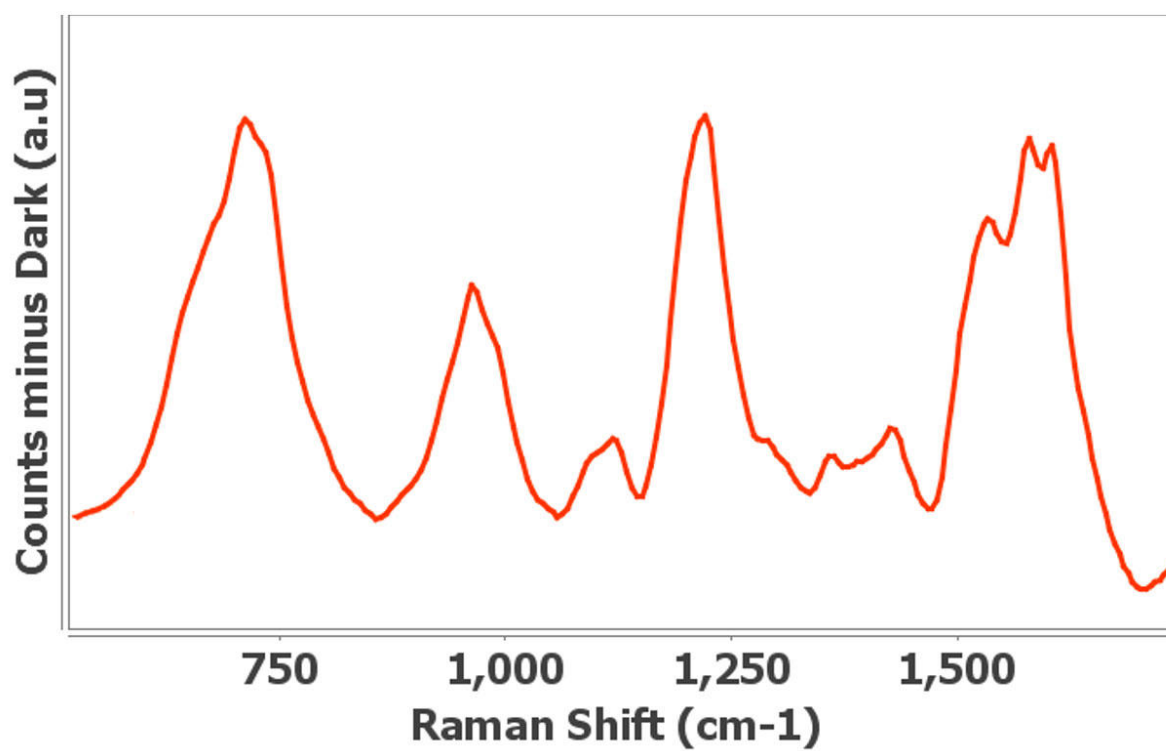
2. (a) 0.1 mol/L 1 mg/mL (b) C013: 2000 ms

EC-SERSC

cEC-SERSSPEsSERS0.1 mol/L KCl0.1 mg/mL c

c2

+0.80 V -0.80 V (3)-0.70 V



3. 0.1 mol/L 0.1 mg/mL c: 2000 ms

2. c [2,3].

cSERS [cm ⁻¹]	
713	
969	
1123	C-C ₁
1220	
1358	
1426	1/4
1528	CC _m , CN
1578	CC, CC _m ,
1604	CC _m , CC

cFec1604 cm111636 cm1(3)(2)EC-SERSc

638 nm

()SERSALDHcFe

1. Martín-Yerga, D.; Pérez-Junquera, A.; González-García, M. B.; et al. Quantitative Raman Spectroelectrochemistry Using Silver Screen-Printed Electrodes. *Electrochimica Acta* **2018**, 264, 183–190. <https://doi.org/10.1016/j.electacta.2018.01.060>.
2. Brazhe, N. A.; Evlyukhin, A. B.; Goodilin, E. A.; et al. Probing Cytochrome c in Living Mitochondria with Surface-Enhanced Raman Spectroscopy. *Sci Rep* **2015**, 5 (1), 13793. <https://doi.org/10.1038/srep13793>.
3. Hu, S.; Morris, I. K.; Singh, J. P.; Complete Assignment of Cytochrome c Resonance Raman Spectra via Enzymic Reconstitution with Isotopically Labeled Hemes. *J. Am. Chem. Soc.* **1993**, 115 (26), 12446–12458. <https://doi.org/10.1021/ja00079a028>.

AN-RA-006 New strategies for obtaining the SERS effect in organic solvents

AN-SEC-001 Spectroelectrochemistry: an autovalidated analytical technique – Confirm results

via two different routes in a single experiment

AN-SEC-002 Gathering information from spectroelectrochemical experiments – Calculation of electrochemical parameters from data

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DropView SPELEC Software

DropView SPELEC is a Spectroelectrochemical software that controls SPELEC instrument, offering a perfect synchronization of the optical and electrochemical measurements, as well as advanced tools for data treatment.