Surface enhanced Raman optical activity as an ultra sensitive tool for ligand binding analysis - DTU Orbit (06/12/2018)

**Surface enhanced Raman optical activity as an ultra sensitive tool for ligand binding analysis**
The Surface Enhanced Resonance Raman Scattering (SERRS) and Surface Enhanced Resonance Raman Optical Activity (SERROA) spectra of myoglobin and the myoglobin-azide complex were measured on very dilute samples (100 nM protein) in order to analyze the sensitivity of SERROA spectroscopy when inducing small structural changes. While the SERRS spectra of the two compounds were virtually identical, comparison of the SERROA spectra revealed several differences, including frequency shifts and changes in signal intensity, consistent with structural change in the porphyrin prosthetic group of the protein upon azide complexation. Application of this method allows for rapid analysis of ligand binding in metalloproteins in dilute aqueous solution and could in the future, when combined with theoretical studies, increase the obtainable structural resolution of proteins beyond that of X-ray analysis.

**General information**
State: Published  
Organisations: Department of Physics  
Contributors: Johannessen, C., Abdali, S.  
Pages: 143-149  
Publication date: 2007  
Peer-reviewed: Yes

**Publication information**
Journal: Spectroscopy-an International Journal  
Volume: 21  
Issue number: 3  
ISSN (Print): 0712-4813  
Ratings:  
BFI (2018): BFI-level 1  
Web of Science (2018): Indexed yes  
BFI (2017): BFI-level 1  
Scopus rating (2017): CiteScore 0.84 SJR 0.264 SNIP 0.402  
Web of Science (2017): Impact factor 1.391  
Web of Science (2017): Indexed yes  
BFI (2016): BFI-level 1  
Scopus rating (2016): CiteScore 0.6 SJR 0.215 SNIP 0.36  
Web of Science (2016): Impact factor 0.761  
BFI (2015): BFI-level 1  
Scopus rating (2015): CiteScore 0.45 SJR 0.176 SNIP 0.364  
Web of Science (2015): Impact factor 0.814  
BFI (2014): BFI-level 1  
Scopus rating (2014): CiteScore 0.28 SJR 0.128 SNIP 0.257  
Web of Science (2014): Impact factor 0.836  
BFI (2013): BFI-level 1  
Scopus rating (2013): SJR 0.222 SNIP 0.265  
Web of Science (2013): Impact factor 0.831  
ISI indexed (2013): ISI indexed yes  
BFI (2012): BFI-level 1  
Scopus rating (2012): SJR 0.233 SNIP 0.325  
Web of Science (2012): Impact factor 0.53  
ISI indexed (2012): ISI indexed yes  
BFI (2011): BFI-level 1  
Scopus rating (2011): SJR 0.318 SNIP 0.509  
Web of Science (2011): Impact factor 0.805  
ISI indexed (2011): ISI indexed yes  
BFI (2010): BFI-level 1  
Scopus rating (2010): SJR 0.252 SNIP 0.442  
Web of Science (2010): Impact factor 0.932  
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.342 SNIP 0.501
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 0.225 SNIP 0.396
Scopus rating (2007): SJR 0.238 SNIP 0.394
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 0.287 SNIP 0.35
Scopus rating (2005): SJR 0.251 SNIP 0.372
Scopus rating (2004): SJR 0.229 SNIP 0.321
Scopus rating (2003): SJR 0.246 SNIP 0.469
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 0.445 SNIP 0.659
Scopus rating (2001): SJR 0.271 SNIP 0.522
Scopus rating (2000): SJR 0.559 SNIP 0.459
Scopus rating (1999): SJR 0.575 SNIP 0.586
Original language: English
Keywords: Metalloprotein, SERRS, Chiral, Spectroscopic analysis, Colloid, SEROA
Electronic versions:
SEROA-ligand.pdf
URLs:
http://www.iospress.nl/loadtop/load.php?isbn=07124813
Source: orbit
Source-ID: 214427
Research output: Research - peer-review › Journal article – Annual report year: 2007