

---

## Shana O. Kelley

University of Toronto  
 Dept. of Pharmaceutical Sciences, Faculty of Pharmacy  
 Dept. of Biochemistry, Faculty of Medicine  
 Dept. of Chemistry, Faculty of Arts and Sciences  
 Institute of Biomaterials & Bioengineering, Faculty of Engineering  
 Toronto, ON Canada M5S 3M2

phone: (416)978-8641  
 email: shana.kelley@utoronto.ca

---

### **Research interests**

Nanoscale biosensors and nanobiomaterials. Engineering cell-permeable compounds for drug delivery.

### **Education**

|   |                                      |      |
|---|--------------------------------------|------|
| Ph.D.                                     | Chemistry                            | 1999 |
| <b>California Institute of Technology</b> |                                      |      |
| B.A.                                      | Chemistry ( <i>summa cum laude</i> ) | 1994 |
| <b>Seton Hall University</b>              |                                      |      |

### **Professional experience**

|  |  |              |
|--|--|--------------|
| <b>Director, Division of Biomolecular Sciences</b> | Faculty of Pharmacy<br>University of Toronto | 2008-2011    |
| <b>Professor</b>                                   | University of Toronto                        | 2006-present |
| <b>Professor*</b>                                  | Boston College                               | 2006         |
| (*direct promotion from Assistant Professor)       |  |              |
| <b>Assistant Professor</b>                         | Boston College                               | 2000-2006    |
| <b>NIH Postdoctoral Fellow</b>                     | Scripps Research Institute                   | 1999-2000    |

### **Awards and honors**

|   |           |
|---|-----------|
| ORION Leadership award                                      | 2011      |
| Stacie Prize  | 2011      |
| University of Toronto Inventor of the Year                  | 2011      |
| NSERC E.W.R. Steacie Fellowship                             | 2010      |
| Named one of "Canada's Top 40 under 40"                     | 2009      |
| Pittsburgh Conference Achievement Award                     | 2006      |
| Camille Dreyfus Teacher-Scholar Award                       | 2005      |
| TR100: Voted a top 100 innovator by MIT's Technology Review | 2004      |
| Alfred P. Sloan Fellowship                                  | 2004      |
| NSF CAREER award  | 2004      |
| Research Corporation Innovation Award                       | 2000      |
| Dreyfus New Faculty Award                                   | 2000      |
| NIH Postdoctoral Fellowship                                 | 1999-2000 |
| Herbert Newby McCoy Thesis Award                            | 1999      |
| Everhart Distinguished Graduate Student Award               | 1998      |

### **Professional activities**

*Theme Organizer, ASBMB 2011 • Symposium Organizer, Pittcon 2010 • Session Organizer, CSC 2010 • Symposium Organizer, Pacifichem 2010 • Co-founder, Xagenic, Inc. • Organizer, "Frontiers of the Pharmaceutical Sciences" Symposium, University of Toronto, 2009 • Guest editor, Current Opinion in Chemical Biology, 2008 • Panel Member, CIHR (Cancer Progression and Therapeutics) 2007-2010 • NIH ad-hoc Study Section Participant: (Enabling Bioanalytical Technologies) 2007 • NIH ad-hoc Study Section Participant: (Innovative Technologies) 2007 • Nanoscience and Nanotechnology Planning Committee, NAS/Keck Futures Initiative, 2004 • Panel Member, NSF, 2003 • NIH ad-hoc Study Section Participant: (Biodefense) 2003 • Consultant, NOVA, 2003 • Chair, 2002 Frontiers in Chemistry Symposium, Durham, NH • Founding Scientist and Consultant, GeneOhm Sciences.*

### **Publications from Kelley Group research**

1. "An Ultrasensitive, Universal Detector Based on Neutralizer Displacement."  
J. Das, K.B. Cederquist, P. Lee, E.H. Sargent, **S.O. Kelley**  
*Nature Chemistry*, **2012**, *in press*.
2. "Nanostructured Biomolecular Detectors: Pushing Performance at the Nanoscale."  
K. Cederquist, **S.O. Kelley**  
*Current Opinion in Chemical Biology*, **2012**, *in press*.
3. "DNA-Based Programming of Quantum Dot Properties."  
N. Ma, **S.O. Kelley**  
*WIREs Nanomedicine & Nanobiotechnology*, **2012**, *in press*.
4. "Polymerase Chain Reaction-Free, Sample-to-Answer Bacterial Detection in 30 Minutes with Integrated Cell Lysis."  
B. Lam, Z. Fang, E.H. Sargent, **S.O. Kelley**  
*Analytical Chemistry*, **2012**, *84*, 21.
5. "Tuning the Activity of Mitochondria-Penetrating Peptides for Delivery or Disruption."  
K.L. Horton, M.P. Pereira, K.M. Stewart, S.B. Fonseca, **S.O. Kelley**  
*ChemBiochem*, **2012**, doi: 10.1002/cbic.201100415.
6. "DNA-Based Programming of Quantum Dot Valency, Luminescence and Complex Self-Assembly."  
G. Tikhomirov, S. Hoogland, P.E. Lee, A. Fischer, E.H. Sargent, **S.O. Kelley**  
*Nature Nanotechnology*, **2011**, *6*, 485.
7. "Development of Novel Peptides for Mitochondrial Drug Delivery: Amino Acids Featuring Delocalized Lipophilic Cations."  
K. Stewart, R. Mourtada, **S.O. Kelley**  
*Pharmaceutical Research*, **2011**, *28*, 2808.
8. "Peptide-Chlorambucil Conjugates Combat Pgp-Dependant Drug Efflux."  
S.B. Fonseca & **S.O. Kelley**  
*ACS Medicinal Chemistry Letters*, **2011**, *2*, 419.
9. "Direct Genetic Analysis of Ten Cancer Cells: Tuning Molecular Probe Design for Efficient mRNA Capture."  
E. Vasilyeva, Z. Fang, M. Minden, E.H. Sargent, **S.O. Kelley**  
*Angewandte Chemie*, **2011**, *50*, 4137. (Voted a "VIP" paper)
10. "Hierarchical Nanotextured Microelectrodes Overcome the Molecular Transport Barrier to Achieve Rapid, Direct Bacterial Detection."  
L. Soleymani, Z. Fang, B. Lam, X. Bin, E. Vasilyeva, A. Ross, E.H. Sargent, **S.O. Kelley**  
*ACS Nano*, **2011**, *5*, 3360.
11. "Maximizing the Therapeutic Window of an Antimicrobial Drug by Imparting Mitochondrial Sequestration in Human Cells."  
M.P. Pereira & **S.O. Kelley**  
*J. Am. Chem. Soc.*, **2011**, *133*, 3260.  
(Featured in *C&E News, Faculty of 1000*).
12. "Re-routing Chlorambucil to Mitochondria Enhances Potency and Combats Drug Resistance in Cancer Cells."  
S.B. Fonseca, M.P. Pereira, R. Mourtada, M. Gronda, R. Hurren, M.D. Minden, A.D. Schimmer, **S.O. Kelley**  
*Chemistry and Biology*, **2011**, *18*, 445.
13. "Solvatochromic Reagents for Multicomponent Reactions and their Utility in the Development of Cell-Permeable Macrocyclic Peptide Vectors"

- B.H. Rotstein, R. Mourtada, S.O. Kelley, A.K. Yudin,  
*Chemistry*, **2011**, *17*, 12257.
14. "Protein Detection Using Arrayed Microsensor Chips: Tuning Sensor Footprint to Achieve Ultrasensitive Readout of CA-125 in Serum and Whole Blood."  
J.Das & **S.O. Kelley**  
*Analytical Chemistry*, **2011**, *83*, 1167.
  15. "Nanostructuring of Sensors Determines the Hybridization of Biomolecular Capture."  
X. Bin, E.H. Sargent, **S.O. Kelley**  
*Analytical Chemistry*, **2010**, *82*, 5928.
  16. "Nucleic Acid-Passivated Nanocrystals: Biomolecular Templating of Form and Function."  
N. Ma, G. Tikhomirov, **S.O. Kelley**  
*Accounts of Chemical Research*, **2010**, *43*, 173.
  17. "The Antiparasitic Agent Ivermectin Induces Chloride-Dependent Membrane Hyperpolarization and Cell Death in Leukemia Cells."  
S. Sharmeen, M. Skrtic, M.A Sukhai, R. Hurren, M. Gronda, X. Wang, S.B. Fonseca, H. Sun, M.D. Minden. R. Batey, A. Datti, J. Wrana, **S.O. Kelley**, A.D. Schimmer  
*Blood*, **2010**, *116*, 3593.
  18. "Programming the Detection Limits of Biosensors through Controlled Nanostructuring."  
L. Soleymani, Z. Fang, E.H. Sargent, **S.O. Kelley**  
*Nature Nanotechnology*, **2009**, *4*, 844.  
(This article was highlighted by >100 media outlets, including CBC National News)
  19. "Direct, Electronic MicroRNA Detection Reveals Expression Profiles in 30 Minutes."  
H. Yang, A. Hui, G. Pampalakis, L. Soleymani, F.-F. Liu, E. H. Sargent, **S.O. Kelley**  
*Angewandte Chemie*, **2009**, *48*, 8461.  
(Highlighted in Nature)
  20. "A General Phase-Transfer Protocol for Metal Ions and its Application in Nanocrystal Synthesis. " J. Yang, E.H. Sargent, **S.O. Kelley**, J. Ying  
*Nature Materials*, **2009**, *4*, 844.
  21. "Direct Profiling of Cancer Biomarkers in Tumour Tissue Using a Multiplexed Nanostructured Microelectrode Integrated Circuit. " Z. Fang, L. Soleymani, G. Pampalakis, M. Yoshimoto, J.A. Squire, E. H. Sargent, **S.O. Kelley**  
*ACS Nano*, **2009**, *3*, 3207.
  22. "Nanostructuring of Patterned Microelectrodes to Enhance the Sensitivity of Electrochemical Nucleic Acids Detection. "  
L. Soleymani, X. Sun, H. Yang, B.J. Taft, E. H. Sargent, **S.O. Kelley**  
*Angewandte Chemie*, **2009**, *48*, 8457.
  23. "Recent Advances in the Biological and Medical Applications of Cell-Penetrating Peptides."  
S.B. Fonseca, M. Pereira, **S.O. Kelley**  
*Adv. Drug. Del. Rev.* **2009**, *61*, 953.
  24. "One-step Synthesis of DNA-Programmed Semiconductor Nanocrystals."  
N. Ma, E.H. Sargent, **S.O. Kelley**  
*Nature Nanotechnology*, **2009**, *4*, 121.
  25. "Direct Electrocatalytic mRNA Detection Using PNA-Nanowire Sensors."  
Z. Fang **S.O. Kelley**  
*Anal. Chem.*, **2009**, *81*, 612.
  26. "An Electrochemical Immunosensor Based on Antibody-Nanowire Conjugates."  
G. Pampalakis & **S.O. Kelley**  
*The Analyst*, **2009**, *134*, 447

27. "Mitochondria-Penetrating Peptides: Sequence Effects and Model Cargo Transport." L. Yousif, K.M. Stewart, K.L. Horton, **S.O. Kelley**  
*ChemBioChem*, **2009**, *10*, 2081.
28. "Engineered Apoptosis-Inducing Peptides with Enhanced Mitochondrial Localization and Potency." K.L. Horton, **S.O. Kelley**  
*J. Med. Chem.*, **2009**, *52*, 3293.
29. "Targeting Mitochondria with Organelle-Specific Compounds: Strategies and Applications." L. Yousif, K.M. Stewart, and **S.O. Kelley**  
*ChemBioChem*, **2009**, *10*, 1939.
30. "Potential Use of Cetrimonium Bromide as an Apoptosis-Promoting Anticancer Agent for Head and Neck Cancer.." E. Ito, K.W. Yip D. Katz, S.B. Fonseca, D.W. Hedley, S. Chow, G.W Xu, T.E. Wood, C. Bastianutto, A.D. Schimmer, **S.O. Kelley**, F.F. Liu  
*Molecular Pharmacology*, **2009**, *76*, 969.
31. "Nanomaterials for Ultrasensitive Electrochemical Biosensing." H. Lord & **S.O. Kelley**  
*J. Matl. Chem.*, **2009**, *19*, 3127.
32. "Measurement Science: the Engine of Chemical Biology." **S.O. Kelley** & D.R. Walt  
*Curr. Opin. Chem. Biol.* **2008**, *12*, 473.
33. "Cell-Permeable Peptides as Delivery Vehicles for Biology and Medicine." K.M. Stewart, K.L. Horton, **S.O. Kelley**  
*Org. Biomol. Chem.*, **2008**, *6*, 2242.
34. "Mitochondria-Penetrating Peptides." K.L. Horton, K.M. Stewart, S.B. Fonseca, **S.O. Kelley**  
*Chemistry & Biology*, **2008**, *15*, 375.  
(*This article was highlighted by the Faculty of 1000, Nature Methods, and C&E News.*)
35. "A Comparison of Quality of Dispersion of Single Wall Carbon Nanotubes using Different Surfactants and Biomolecules." R. Haggmueller, S. Rahatekar, J. Fagen, J. Chun, M. Becker, T. Krauss, R. Naik, L. Carlson, J. Kadla, P. Trulove, D. Fox, Z. Fang, **S.O. Kelley**, J. Gilman  
*Langmuir*, **2008**, *24*, 5070.
36. "Biotemplated Nanostructures: Directed Assembly of Electronic and Optical Materials using Nanoscale Complementarity." N. Ma, E.H. Sargent, **S.O. Kelley**  
*J. Mat. Chem.*, **2008**, *18*, 954.
37. "DNA-Passivated CdS Nanocrystals: Luminescence, Bioimaging, and Toxicity Profiles." N. Ma, J. Yang, K.M. Stewart, **S.O. Kelley**  
*Langmuir*, **2007**, *23*, 12783.
38. "Deconvolution of the Oxidative Stress Response using Organelle-Specific Peptides" K.P. Mahon, T.B. Potocky, D. Blair, M.D. Roy, T.C. Chiles, **S.O. Kelley**  
*Chemistry and Biology*, **2007**, *14*, 923.
39. "Cyanine Dye Conjugates as Probes for Live Cell Imaging." J.R. Carreon, K.M. Stewart, K.P. Mahon, S. Shin, **S.O. Kelley**  
*Bioorg. Med. Chem. Lett.*, **2007**, *17*, 5182.
40. "Ultrasensitive Detection of Enzymatic Activity with Nanowire Electrodes." M.A. Roberts & S.O. Kelley  
*J. Am. Chem. Soc.*, **2007**, *129*, 11356.

41. "NIR-emitting Colloidal Quantum Dots having 26% Luminescence Quantum Yield." S. Hinds, S. Myrskog, L. Levina, G. Koleilat, J. Yang, **S.O. Kelley**, E.H. Sargent *J. Am. Chem. Soc.*, **2007**, *129*, 7218 .
42. "Nucleotide-Stabilized Cadmium Sulfide Nanoparticles." C. J. Dooley, J. Rouge, N. Ma, M. Invernale, **S.O. Kelley** *J. Mat. Chem.*, **2007**, *17*, 1687.
43. "A Single Residue in Leucyl-tRNA Synthetase Affecting Amino Acid Specificity and tRNA Aminoacylation." S.W. Lue & **S.O. Kelley** *Biochemistry*, **2007**, *46*, 4466.
44. "Opto-electrical Characteristics of ZnO Nanorods Grown by DNA-Directed Assembly on a Carbon Nanotube Array" A.D. Lazareck, S.G. Cloutier, T.-F. Kuo, B.J. Taft, **S.O. Kelley**, and J.M. Xu *Applied Physics Letters*, **2006**, *89*, 103109.
45. "RNA-Templated Semiconductor Nanocrystals." N. Ma, C.J. Dooley, and **S.O. Kelley** *J. Am. Chem. Soc.*, **2006**, *128*, 12598.
46. "Heterogeneous Deposition of Noble Metals on Semiconductor Nanoparticles in Organic or Aqueous Solvents". J. Yang, L. Levina, E. H. Sargent, **S.O. Kelley** *J. Mat. Chem.*, **2006**, *16*, 4025.
47. "Microfluidic Three-Electrode Cell Array for Low-Current Electrochemical Detection" N. Trirog, M.A. Lapierre-Devlin, **S.O. Kelley**, and J.R. Beresford *IEEE Sensors*, **2006**, *128*, 1395.
48. "DNA-Directed Synthesis of Zinc Oxide Nanowires on Carbon Nanotube Tips" A.D. Lazareck, S.G. Cloutier, T.-F. Kuo, B.J. Taft, **S.O. Kelley**, and J.M. Xu *Nanotechnology*, **2006**, *17*, 2661.
49. "An Intercalator Monolayer as a DNA-Electrode Interface." B.J. Taft, M.A. Lapierre-Devlin, and **S.O. Kelley** *Chem. Comm.*, **2006**, *9*, 962.
50. "Programming Nanoparticle Growth using Nucleic Acid Ligands." S. Hinds, B.J. Taft, L. Levina, C.J. Dooley, M.D. Roy, and E.H. Sargent, and **S.O. Kelley** *J. Am. Chem. Soc.*, **2006**, *128*, 64.
51. "Tunable DNA Photocleavage by Peptidointercalator Conjugates." K.P. Mahon, M.D. Roy, J.R. Carreon, E.G. Prestwich, J. Rouge, S. Shin, and **S.O. Kelley** *Chem. Bio. Chem.*, **2006**, *7*, 766.
52. "Amplified Electrocatalysis at DNA-Modified Nanowires." M.A. Lapierre-Devlin, R. Gasparac, M.A. Roberts, and S.O. Kelley *Nano Letters*, **2005**, *5*, 1051.
53. "Oxidative DNA Strand Scission Induced by Peptides." E.G. Prestwich, M.D. Roy, J. Rego, and S.O. Kelley *Chemistry and Biology*, **2005**, *12*, 695.
54. "Phototoxicity of Peptidoconjugates Modulated by a Single Amino Acid." L.M. Wittenhagen, J.R. Carreon, E.G. Prestwich, **S.O. Kelley** *Angewandte Chemie*, **2005**, *44*, 2542.
55. "Synthesis, Characterization, and Cellular Uptake of Rose Bengal Peptidoconjugates." J.R. Carreon, M.A. Roberts, L.M. Wittenhagen, and **S.O. Kelley** *Organic Letters*, **2005**, *7*, 99.

56. "Solution Structure of a Pathogenic tRNA Mutant."  
M.D. Roy, L.M. Wittenhagen, and **S.O. Kelley**  
*RNA*, **2005**, *11*, 254.
57. "A Human Aminoacyl-tRNA Synthetase with a Defunct Editing Site."  
S.W. Lue and **S.O. Kelley**  
*Biochemistry*, **2005**, *44*, 3010.
58. "Combinatorial Analysis of tRNA Substrates for hs mt LeuRS."  
E. Zagriadska and **S.O. Kelley**  
*Biochemistry*, **2005**, *44*, 233.
59. "Ultrasensitive Electrocatalytic DNA Detection with 3D Nanoelectrodes."  
R.L. Gasparac, B.J. Taft, M.A. Lapierre-Devlin, A.D. Lazareck, J. Xu, and **S.O. Kelley**,  
*J. Am. Chem. Soc.*, **2004**, *126*, 12270.
60. "Site-Specific Delivery of DNA and Appended Cargo to Arrayed Carbon Nanotubes."  
B.J. Taft, A. Lazareck, J.M. Xu, and **S.O. Kelley**  
*J. Am. Chem. Soc.*, **2004**, *126*, 12750.
61. "Interdomain Communication in a Disease-Related Human tRNA."  
M.D. Roy, L.M. Wittenhagen, and **S. O. Kelley**  
*Biochemistry*, **2004**, *43*, 384.
62. "Thiazole Orange-Peptide Conjugates: Sensitivity of DNA Binding to Chemical Structure."  
K.P. Mahon, J.R. Carreon, and **S.O. Kelley**  
*Organic Letters*, **2004**, *6*, 517.
63. "Impact of Disease-Related Mitochondrial Mutations on tRNA Structure and Function." L.M. Wittenhagen and **S.O. Kelley**  
*Trends in Biochemical Sciences*, **2003**, *28*, 605.
64. "The Pathogenic U3271C Human Mitochondrial tRNA<sup>Leu(UUR)</sup> Mutation Disrupts a Fragile Anticodon Stem."  
L.M. Wittenhagen, M.D. Roy, and **S.O. Kelley**  
*Nucl. Acids Res.*, **2003**, *2*, 596.
65. "Engineering DNA-Electrode Connectivities: Manipulation of Linker Length and Structure."  
B. Taft, M. O'Keefe, J. Fourkas, and **S.O. Kelley**  
*Anal. Chim. Acta.*, **2003**, *496*, 81.
66. "Electrocatalytic Detection of Pathogenic DNA Sequences."  
M.A. Lapierre, M.M. O'Keefe, B.J. Taft, and **S. O. Kelley**  
*Anal. Chem.*, **2003**, *75*, 632.
67. "Photosensitized DNA Cleavage Promoted by Amino Acids."  
K.P. Mahon, R.F. Ortiz Meoz, and **S. O. Kelley**  
*Chem. Comm.*, **2003**, *15*, 1956.
68. "Charge Migration Through Double Helical DNA."  
S.O. Kelley in *Electroanalytical Methods for Biological Materials*, Marcel Dekker, NY, **2002**.
69. "Dimerization of a Pathogenic Human tRNA."  
L.M. Wittenhagen and **S.O. Kelley**  
*Nature Structural Biology*, **2002**, *9*, 586.

**Post-doctoral and graduate research publications**

70. "Intercalative Stacking: A Critical Feature of DNA Charge-Transport Electrochemistry."  
E.M. Boon, N.M. Jackson, M.D. Wightman, **S.O. Kelley**, M.G. Hill, and J.K. Barton  
*J. Phys. Chem. B.*, **2003**, *107*, 11805.
71. "Fragile T-stem in Disease-Associated Human Mitochondrial tRNA Sensitizes Structure to Local and Distant Mutations."

- S.O. Kelley**, S.V. Steinberg, and P. Schimmel,  
*J. Biol. Chem.* **2001**, 276, 10607.
72. "Synthesis and Spectroelectrochemistry of Ir(bpy)(phen)(phi)<sup>3+</sup>."  
C.S. Stinner, M.D. Wightman, **S.O. Kelley**, M.G. Hill, J.K. Barton  
*Inorg. Chem.* **2001**, 40, 5245.
73. "Pathogenic Functional Defects of a Mitochondrial tRNA Related to Structural Fragility."  
**S.O. Kelley**, S. V. Steinberg, and P. Schimmel  
*Nature Structural Biology* **2000**, 7, 862.
74. "Exiting an RNA World."  
P. Schimmel & **S.O. Kelley**  
*Nature Structural Biology* **2000**, 7, 5.
75. "Single-Base Mismatch Detection Based on Charge Transduction Through DNA".  
**S.O. Kelley**, E.M. Boon, N.M. Jackson, M.G. Hill, and J.K. Barton  
*Nucl. Acids Res.* **1999**, 27, 4830.
76. "Femtosecond Dynamics of DNA-Mediated Electron Transfer."  
T. Fiebig, **S.O. Kelley**, C. Wan, C. R. Treadway, J.K. Barton, A. Zewail,  
*Proc. Natl. Acad. Sci., U.S.A.* **1999**, 96, 6014.
77. "Femtosecond Dynamics of the DNA Intercalator Ethidium and Electron Transfer with Mononucleotides." T. Fiebig, C. Wan, **S.O. Kelley**, J.K. Barton, A. Zewail,  
*Proc. Natl. Acad. Sci., U.S.A.* **1999**, 96, 1187.
78. "Long-Range Electron Transfer Through DNA Monolayers."  
**S.O. Kelley**, N.M. Jackson, M.G. Hill, and J.K. Barton  
*Angew. Chem. Intl. Ed. Eng.* **1999**, 38, 941.
79. "Electron Transfer between Bases in Double Helical DNA."  
**S.O. Kelley** & J.K. Barton  
*Science* **1999**, 283, 375-383.
80. "Orienting DNA Helices on Gold Using Applied Fields."  
**S.O. Kelley**, J. K. Barton, N.M. Jackson, L. MacPherson, A. Potter, E.M. Spain,  
M.J. Allen, and M.G. Hill  
*Langmuir* **1998**, 14, 6781.
81. "Long-Range and Short-Range Oxidative Damage to DNA: Photoinduced Damage to Guanines in Ethidium-DNA Assemblies."  
D.B. Hall, **S.O. Kelley**, J.K. Barton  
*Biochemistry* **1998**, 37, 15933.
82. "Radical Migration Through the DNA Helix: Chemistry at a Distance."  
**S.O. Kelley** & J.K. Barton  
*Metal Ions Biol. Sys.* **1998**, 26, 211.
83. "DNA-Mediated Electron Transfer from Ethidium to a Modified Base."  
**S.O. Kelley** & J.K. Barton,  
*Chemistry and Biology*, **1998**, 8, 413.
84. "Photoinduced Electron Transfer in Ethidium-Modified Duplexes."  
**S.O. Kelley**, R.E. Holmlin, E.D.A. Stemp, and J.K. Barton  
*J. Am. Chem. Soc.* **1997**, 119, 9861.
85. "Electrochemistry of Methylene Blue Bound to a DNA-Modified Electrode."  
**S.O. Kelley**, J. K. Barton, N.M. Jackson, and M. Hill  
*Bioconj. Chem.* **1997**, 8, 31.

**Patents**

7,741,033 Electrocatalytic nucleic acid hybridization detection  
7,361,470 Electrocatalytic nucleic acid hybridization detection  
7,202,037 Electrochemical sensor using intercalative, redox-active moieties  
6,958,216 DNA-bridged carbon nanotube arrays  
6,649,350 Electrochemical sensor using intercalative, redox-active moieties  
6,461,820 Electrochemical sensor using intercalative, redox-active moieties  
6,221,586 Electrochemical sensor using intercalative, redox-active moieties  
WO2010/025547 Nanostructured microsensors and biosensing devices employing same

**Recent invited conference lectures**

SANKEN Research Symposium Osaka, Japan (2/05), DARPA Workshop on DNA Photonics, Hawaii (4/05), Materials Research Society, Boston, Massachusetts (4/05), Visions in Chemistry Symposium Rahway, New Jersey (5/05), University of Michigan Chemical Biology Interface Symposium (5/05), Argonne National Laboratories Center for Nanomaterials Symposium, Argonne, Illinois (5/05), NSF Workshop on Molecular Medicine, Portugal (6/05), Free Radicals in Organic Mechanisms Gordon Conference, New England (7/05), Bioanalytical Sensors Gordon Conference, Ventura, California (2/06), Discovery 2 Diagnostics: Chips to Hits, Boston, Massachusetts (9/06), Pittsburgh Conference, Chicago, Illinois (2/07), Biocomputing & Biophotonics: AFOSR/DARPA Workshop, Dayton, Ohio (4/06), Canadian Undergraduate Technology Conference, Toronto, Ontario (1/07), Biomimetics, Biomaterials, and Biointerfacial Sciences (AFOSR), Key West, Florida (1/07), Pittsburgh Conference, New Orleans, Louisiana (3/08), Innovative Technologies for Molecular Analysis, Boston, Massachusetts (10/08), Pittsburgh Conference, Chicago, IL (3/09), Colorectal Cancer Roundtable (4/09), ICBIC 2009, Nagoya, Japan (6/09), iCeMS symposium on Nanomaterials, Kyoto, Japan (6/09), Society for Analytical Chemistry, Pittsburgh, PA (1/10), Pittcon, Orlando, FL (3/10), DARPA Workshop on Chip-Based Sensors, Chantilly, VA (3/10), Metals in Biology Gordon Conference, Ventura, CA (3/10), MicroRNAs in Human Health and Disease, Boston, MA (3/10), CHI's Future Diagnostics, Irvine, CA (4/10), ESF Conference on Nanotechnology for Sustainable Energy, Obergurgl, Austria (7/10), Molecular Diagnostics World Congress (10/10), TB: What we know, and what lies below, Toronto, ON (11/10), Pacificchem, Honolulu, Hawaii (12/10), GTCBio Molecular Diagnostics Conference, San Diego, CA (3/11), Experimental Biology, Washington DC, (4/11), European Materials Research Society, Nice, France (5/11), TIDES, Boston, MA (5/11), Canadian Society for Chemistry, Montreal, QC, (6/11), ACS Symposium on Colloids (6/11), Canada-China Analytical Chemistry Conference, Toronto, ON (8/11), Molecular Diagnostics Congress (9/11), Canadian Cancer Research Conference, Toronto, ON (11/11), DARPA Diagnostics on Demand Kickoff Meeting (11/11), Pittcon (3/12), Gordon Research Conference on Peptide Chemistry and Biology (3/12).

**Recent invited lectures at universities**

University of Maryland, Baltimore (2/05), Facultés Universitaires Notre-Dame de la Paix (2/05), Georgia Institute of Technology (2/05), University of Toronto (3/05), University of Utah (3/05), University of North Carolina (4/05), Penn State University (4/05), University of California, San Francisco (5/05), Massachusetts Institute of Technology (9/05), California Institute of Technology (10/05), University of California, San Diego (10/05), Colorado State University, (10/05), University of California, Berkeley, (10/05), University of Minnesota (11/05), Carleton College, (11/05), Brown University (12/05), University of Illinois (12/05), University of Wisconsin (12/05), University of Washington, (12/05), Stanford University (1/06), University of Toronto, Center for Cellular and Biomolecular Research (3/06), Duke University (4/06), University of Toronto, Faculty of Pharmacy, (4/06), University of Rochester (9/06), University of Waterloo (4/07), Texas A&M (4/07), Princess Margaret Hospital, Urology Division (9/07), Sick Children's Hospital - Molecular Structure and Function Group - Toronto (2/08), U. Victoria (4/08), U. British Columbia (4/08), Simon Fraser University (4/08), U. Pittsburgh (4/08), Queens University (12/09), McMaster U. (1/09), Institute of Medical Sciences, U. Toronto (7/09), California Institute of Technology (3/10), University of Toronto, Mississauga (3/10), University of Waterloo (3/11), University of Alberta (10/11), University of Ottawa (11/11), Case Western Reserve (11/11), University of British Columbia (2/12), Texas Women's University (3/12), Caltech (3/12).