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Education

- 1988 Postdoctoral Associate, University of Pennsylvania
1987 PhD in Chemistry, University of Pittsburgh
1979 MS in Chemistry, KAIST
1977 BS in Chemistry, Seoul National University

Professional Career

- 2017-present Principal Investigator, Division of Advanced Materials Science, POSTECH
2016-2018 Director, Tae-Joon Park Institute, POSTECH
2015-2017 Dean of Graduate School, POSTECH
2013-2015 Director, Basic Science Research Institute, POSTECH
2006-2008 Head, Department of Chemistry, POSTECH
1999-present Professor, POSTECH
1993-1999 Associate Professor, POSTECH
1996-1997 Visiting Professor, The Scripps Research Institute
1995-1995 Visiting Professor, Tokyo University
1988-1993 Assistant Professor, POSTECH
1986-1987 University of Pittsburgh, Mellon Fellow
1980-1981 Tokyo Inst. of Technology, UNESCO Fellow

Recent Representative Publications

1. J. J. Ro, H. J. Lee, B. H. Kim, "PyA-Cluster system for detection and imaging of miRNAs in living cells through double-three-way junction formation", *Chem. Commun.*, 2018, 54, 7471.
S. Takahashi, K. T. Kim, P. Podbevšek, J. Plavec, B. H. Kim, N. Sugimoto, "Recovery of the Formation and Function of Oxidized G-Quadruplexes by a Pyrene-Modified Guanine Tract", *J. Am. Chem. Soc.*, 2018, 140, 5774-5783.
3. M. Bood, A. F. Füchtbauer, M. S. Wranne, J. J. Ro, S. Sarangamath, A. H. El-Sagheer, D. Rupert, R. S. Fisher, S. Magennis, F. Höök, A. C. Jones, T. Brown, B. H. Kim, A. Dahlen, M. Wilhelmsson and M. Grotli, "Pentacyclic adenine: a versatile and exceptionally bright fluorescent DNA base analogue", *Chemical Science*, 2018, 9, 3494.
4. H. J. Lee, G. H. Go, J. J. Ro, B. H. Kim, "Detection of cofilin mRNA with hybridization-sensitive double-stranded fluorescent probes", *RSC Advances*, 2018, 8, 7514-7517
5. Y. J. Park, D. Nim-anussornkul, T. Vilivan, T. Morri, B. H. Kim, "Facile conversion of ATP-binding RNA aptamer to quencher-free molecular aptamer beacon", *Bioorg. Med. Chem. Lett.*, 2018, 28, 77-80

6. J. J. Ro, G. H. Go, L. M. Wilhelmsson, B. H. Kim, "Fluorescence Properties of 6-Aryl-2'-deoxy-furanouridine and -pyrrolocytidine and their derivatives", *Methods Appl. Fluoresc.*, 2018, 6, 015004
7. Y. J. Park, K. T. Kim and B. H. Kim, "G-quadruplex formation using fluorescent oligonucleotides as a detection method for discriminating AGG trinucleotide repeats.", *Chem. Commun.*, 2016, 52, 12757 - 12760.
8. K. T. Kim, T. S. Choi, K. Y. Kim, H. I. Kim, B. H. Kim, "Disassembly of Chromophore-Guided DNA Duplexes through Site-Selective Binding of Coralyne to Pyrene-Modified Adenine Bases", *ChemPlusChem.*, 2016, 81, 590-593.
9. J. W. Park, Y. J. Park and B. H. Kim, "Quencher-free molecular aptamer beacons (QF-MABs) for detection of ATP", *Bioorg. Med. Chem. Lett.*, 2015, 25, 4597- 4600.
10. K. T. Kim, W. S. Heo, T. H. Joo and B. H. Kim, "Photophysical and structural investigation of a PyA-modified adenine cluster: its potential use for fluorescent DNA probes exhibiting distinct emission color changes", *Org. Biomol. Chem.*, 2015, 13, 8470.
11. S.P.Patil,S.H.Kim,J.R.Jadhav,J.H.Lee,E.M.Jeon,K.T.Kim and B.H.Kim,"Cancer-specific gene silencing through therapeutic siRNA delivery with B vitamin-based nanoassembled low-molecular-weight hydrogelators",*Bioconjugate Chemistry*, 2014, 25, 1517-1525.
12. K. T. Kim, R. N. Veedu, Y. J. Seo and B. H. Kim, "Quencher-Free Molecular Beacons as Probes for Oligonucleotides Containing CAG Repeat Sequences", *Chem. Commun*, 2014, 50, 1561.
13. J. W. Park, Y. J. Seo and B.H.Kim, "Fluorescence modification of the AAAA (4A) loop: Toward a probe of the structural dynamics of the i-motif of the retinoblastoma gene", *Chem. Commun.*, 2014, 50, 52.
14. K. T. Kim, H. W. Kim, D. H. Moon, Y. M. Rhee and B. H. Kim, "DNS C: A Fluorescent, Environmentally Sensitive Cytidine Derivative for the Direct Detection of GGG Triad Sequences ",*Org. Biomol. Chem.*, 2013, 11, 5605-5614.
15. Y. J. Seo and B. H. Kim, "Ethynylpyrene induces pH-dependent, fluorescence-detectable, reversible DNA condensation and decondensation", *RSC Adv.*, 2013, 3, 9150.
16. K. T. Kim and B. H. Kim, "A Fluorescent Probe for 3-Overhang of Telomeric DNA Based on Competition Between Two Interstrand G-Quadruplexes", *Chem. Commun.*, 2013, 49, 1717.
17. H. S. Jeong, S. M. Choi, H. W. Kim, J. W. Park, H. N. Park, S. M. Park, S. K. Jang, Y. M. Rhee and B. H. Kim, "Fluorescent peptide indicator displacement assay for monitoring interactions between RNA and RNA binding proteins", *Mol. BioSyst.*, 2013, 9, 948.
18. E. K. Bang, E. M. Jeon, W. Kim, K. H. Lee, K. T. Kim and B. H. Kim, "Tissue specific delivery of estrone-conjugated siRNAs", *Mol. BioSyst.*, 2013, 9, 974.
19. S. P. Patil, H. S. Jeong, B. H. Kim, "A low-molecular-weight supramolecular hydrogel of riboflavin", *Chem. Commun.*, 2012, 48, 8901.
20. J. H. Ryu, J. Y. Heo, E. -K. Bang, G. T. Hwang and B. H. Kim, "Quencher-free linear beacon systems containing 2-ethynylfluorenone-labeled 2'-deoxyuridine units", *Tetrahedron*, 2012, 68, 72.
21. J. W. Yi and B. H. Kim, "Py A-Modified Oligodeoxyadenylates: Expanded Fluorescence Phenomena and Structural Formation", *Chem. Asian J.*, 2012, 7, 60.
22. J. W. Yi, N. P. E. Barry, M. A. Furrer, O. Zava, P. J. Dyson, B. Therrien and B. H. Kim, "Delivery of Floxuridine Derivatives to Cancer Cells by Water-Soluble Organometallic Cages", *Bioconjugate Chemistry*, 2012, 23, 461.
23. S. Y. Hwang, H. Y. Sun, K. H. Lee, B. H. Oh, Y. J. Cha, B. H. Kim and J. Y. Yoo, "5'-Triphosphate-RNA-independent activation of RIG-IVIA RNA aptamer with enhanced antiviral

- activity", *Nucleic Acids Research*, 2012, 40, 2724.
24. I. J. Lee and B. H. Kim, "Monitoring i-motif transitions through the exciplex emission of a fluorescent probe incorporating two PyA units", *Chem. Commun.*, 2012, 48, 2074.
 25. I. J. Lee, M. Park, T. Joo and B. H. Kim, "Using fluorescence changes of F1U units at terminal and mid-loop positions to probe i-motif structures", *Molecular BioSystems.*, 2012, 8, 486.
 26. J. W. Park, E. -K. Bang, E. M. Jeon and B. H. Kim, "Complexation and conjugation approaches to evaluate siRNA delivery using cationic, hydrophobic and amphiphilic peptides", *Org. Biomol. Chem.*, 2012, 10, 96.
 27. E. -K. Bang, D. Moon and B. H. Kim, "Spontaneous Nanoparticle Formation From a Fluorescent Nucleoside Analogue", *Bull. Korean Chem. Soc.*, 2011, 32, 2906.
 28. E. -K. Bang, J. Won, D. Moon, J. Y. Lee and B. H. Kim, "AT, a Self-Complementary Nucleoside: Synthesis, Solid State Structure, and Fluorescence Behavior", *Chem. Asian J.*, 2011, 6, 2048.
 29. S. P. Patil, J. W. Yi, E. -K. Bang, E. M. Jeon and B. H. Kim, "Synthesis and efficient siRNA delivery of polyamine-conjugated cationic nucleoside lipids", *Med. Chem. Commun.*, 2011, 2, 505.
 30. J. W. Yi, J. Park, N. J. Singh, I. J. Lee, K. S. Kim and B. H. Kim, "Quencher-free molecular beacon: Enhancement of the signal-to-background ratio with graphene oxide", *Bioorg. Med. Chem. Lett.*, 2011, 21, 704.
 31. I. J. Lee and B. H. Kim, "Labeling Oligonucleotides toward the Biomedical Probe", in *Medicinal Chemistry of Nucleic Acids*, L. H. Zhang, Z. Xi, J. Chattopadhyaya Eds., Hoboken, NJ, Wiley, 2011, pp 292-334.
 32. H. W. Yang, J. W. Yi, E. K. Bang, E. M. Jeon and B. H. Kim, "Cationic Nucleolipids as Efficient siRNA Carriers", *Org. Biomol. Chem.*, 2011, 9, 291.
 33. J. W. Yi, J. S. Park, K. S. Kim and B. H. Kim, "pH-Responsive self-duplex of PyA-substituted oligodeoxyadenylate in graphene oxide solution as a molecular switch", *Org. Biomol. Chem.*, 2011, 9, 7434.
 34. S. M. Park, S. J. Nam, H. S. Jeong, W. J. Kim and B. H. Kim, "The effects of 4-(4-methylpiperazine)phenyl group on nucleoside and oligonucleotides : cellular delivery, detection, and stability", *Chem. Asian J.*, 2011, 6, 487.
 35. J.-Y. Park, Y.-S. Lee, B.-Y. Chang, B. H. Kim, S. Jeon, and S.-M. Park, "Label-Free Impedimetric Sensor for a Ribonucleic Acid Oligomer Specific to Hepatitis C Virus at a Self-Assembled Monolayer-Covered Electrode. *Anal. Chem.* 2010, 82, 8342.
 36. S. M. Park, H. J. Yang, S. K. Park, H. M. Kim and B. H. Kim, "Design, Synthesis, and Anticancer Activities of Novel Perfluoroalkyltriazole-Appended 2'-Deoxyuridines", *Bioorganic & Medicinal Chemistry Letters*, 2010, 20, 5831.
 37. H. S. Jeong, M. Park, J. W. Yi, T. Joo and B. H. Kim, "Structural diversity induced by pyrene intercalators in homogeneous oligodeoxyguanylates", *Molecular BioSystems*, 2010, 6, 951.
 38. H. R. Jung, T. K. Vu, S. K. Choi, S. M. Park, and B. H. Kim, "Synthesis of Nucleoside-based Phospholipid Amphiphiles", *Bull. Kor. Chem. Soc.*, 2010, 31, 549.
 39. S. M. Park, J. E. Woo, E. M. Jeon and B. H. Kim, "Synthesis of AZT-Based Cationic Lipids and In Vitro Evaluation of siRNA Delivery", *Chemical Communications*, 2010, 46, 1523.