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Employment

Research Teaching Specialist III

Period : February/03/03 ~ present

Department and Institution :

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Postdoctoral Fellow

Period : July/01/00 ~ February/02/03

Department and Institution :

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Education

Ph.D. Degree

Date received: February 26, 2000

Advisor : Prof. Jong-Sang Park

Department and Institution :

Department of Chemistry, College of Natural Science, Seoul National University, Shillim-Dong San 56-1, Kwanak-Ku, Seoul, 151-742, Korea

M.S :

Date received : February 26, 1995

Advisor : Same as above

Department and Institution : Same as above

B.S :

Date received : February 26, 1993

Department and Institution : Same as above

Publications

1. Jung-Chi Liao*, **Yong-Joo Jeong***, Dong-Eun Kim, Smita S. Patel, and George Oster, "Sequential nucleotide hydrolysis by the ring-shaped T7 helicase", 2004, Oct. *EMBO J.* (Manuscript submitted)

[* These authors made equal contributions to this work.]

2. Natalie M. Stano, **Yong-Joo Jeong**, Padmaja Tummalapalli, Mikhail K. Levin and Smita S. Patel, "The DNA polymerase provides an added driving force that increases the rate of DNA unwinding by the helicase", 2004, Aug. *Nature* (Manuscript submitted)

3. **Yong-Joo Jeong**, Mikhail K. Levin, and Smita S. Patel, "The DNA-Unwinding Mechanism of the Ring Helicase of Bacteriophage T7", *Proc. Natl. Acad. Sci. USA.*, 2004, vol. 101, No. 19, 7264-7269

4. **Yong-Joo Jeong**, Dong-Eun Kim, and Smita S. Patel, "Nucleotide Binding Induces Conformational Changes in *Escherichia coli* Transcription Termination Factor Rho", *J. Biol. Chem.*, 2004, Vol. 279, No. 18, 18370-18376

5. **Yong-Joo Jeong**, Dong-Eun Kim, and Smita S. Patel, "Kinetic Pathway of dTTP Hydrolysis by Hexameric T7 Helicase-primase in the Absence of DNA", *J. Biol. Chem.*, 2002, Vol. 277, No. 46, 43778-43784

6. Seo-Young Kwak, **Yong-Joo Jeong**, Jong-Sang Park, and Jin-Ho Choy, "Bio-LDH nanohybrid for gene therapy", *Solid State Ionics*, 2002, vol. 151, 229-234
7. Jin-Ho Choy, Seo-Young Kwak, Jong-Sang Park, and **Yong-Joo Jeong**, "Cellular uptake behavior of [γ - ^{32}P] labeled ATP-LDH nanohybrids", *J. Mater. Chem.*, 2001, 11(6), 1671-1674
8. Jin-Ho Choy, Seo-Young Kwak, **Yong-Joo Jeong**, and Jong-Sang Park, "Inorganic layered double hydroxides as non-viral vectors", *Angew. Chem. Int. Ed.* 2000, 39, No 22, 4041-4045
9. Jin-Ho Choy, Jong-Sang Park, Seo-Young Kwak, **Yong-Joo Jeong** and Yang-Su Han, "Layered Double Hydroxide as Gene Reservoir", *Molecular Crystal and Liquid Crystal*. 2000, Vol. 341, 425-429
10. Jin-Ho Choy, Seo-Young Kwak, Jong-Sang Park, **Yong-Joo Jeong**, and Josik-Portier, "Intercalative nanohybrids of nucleoside monophosphates and DNA in layered metal hydroxide", *J. Am. Chem. Soc.* 1999, 121(6), 1399-1400.
11. Joon Sig Choi, Eun Jung Lee, Young Hun Choi, **Yong-Joo Jeong**, and Jong Sang Park, "Poly(ethylene glycol)-block- poly(L-lysine) dendrimer : Novel linear polymer/dendrimer block copolymer forming a spherical water-soluble polyionic complex with DNA", *Bioconjugate. Chem.*, 1999, 10, 62-65

Conferences

Yong-Joo Jeong, "Translocation of Bacteriophage T7 Helicase-Primase along Duplex DNA" (poster presentation), Biophysical society 48th annual meeting at Baltimore, Maryland, Feb. 14 - 18, 2004

Yong-Joo Jeong, "Mechanism of DNA unwinding by bacteriophage T7 helicase-primase : Investigation of the role of the 3'-tail, rate of unwinding and step-size" (poster presentation), FASEB summer research conference at Saxton River,

Vermont, Jun. 28 – Jul. 3, 2003

Yong-Joo Jeong, “Kinetics of dsDNA unwinding and dTTP hydrolysis of T7 helicase-primase” (platform presentation), Biophysical society 47th annual meeting at San Antonio, Texas, Mar. 1 - 5, 2003

Yong-Joo Jeong, “Kinetic mechanism of nucleotide binding and hydrolysis by pre-assembled T7 bacteriophage helicase” (poster presentation), Department of Biochemistry Retreat at New Brunswick, NJ, Sep. 13, 2002

Yong-Joo Jeong, “Kinetic mechanism of nucleotide binding and hydrolysis by T7 bacteriophage gp4A” (poster presentation), FASEB summer research conference at Saxton River, Vermont, Jul. 7 - 12, 2001

Yong-Joo Jeong, “Kinetic analysis of dsDNA unwinding and nucleotide hydrolysis by T7 bacteriophage helicase gp4” (poster presentation), Department of Biochemistry Retreat at Warren, NJ, Oct. 27, 2000

Yong-Joo Jeong, “Partial Purification and Characterization of Glucose-6-Phosphatase from Rat Liver Microsome” (poster presentation), Annual Conference of Korean Society of Molecular Biology, Korea Academic Institute of science and Technology, Taejeon, Korea, 1993

Research Experiences

- Kinetic studies of DNA translocation and dsDNA unwinding by hexameric helicases – radiometric and fluorometric assay
- Fluorescence resonance energy transfer (FRET) assay of dye-labeled DNA and protein
- Steady and pre-steady state kinetic studies of nucleotide hydrolysis by hexameric helicases
- Fluorometric assay development for the study of real time kinetics of nucleotide hydrolase and nucleic acid binding protein

- Steady and pre-steady state kinetic analysis of nucleotides and DNA interaction with protein: Radiometric and Fluorescence assay (Stopped-flow and Quench-flow method)
- Oxygen isotope exchange studies by using NMR
- Protein expression and purification with conventional LC and HPLC
- Statistical analysis and computer simulations of kinetics data
- Structure-Function studies to elucidate mechanism of motor protein, helicase
- Gene delivery studies with mammalian cell lines
- Cytotoxicity assay in tissue culture system
- Fluorescence images using confocal microscopy
- Antisense oligonucleotide chemistry for potential agent against disease
- Solid phase poly-peptide synthesis for complex with DNA

References

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3. George Oster

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