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**FIELDS OF INTEREST:**

- **Computational, Mathematical & Theoretical Biology**
- **Structural Bioinformatics & Biological Data Mining**
- **Structural Biology & Structure-Based Drug Design**

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**EDUCATION:****Degrees:**

**Ph.D. Chemistry**, California Institute of Technology, Pasadena, California, USA  
(conc. in molecular biology & biochemistry)

**B. S. Mathematics** (*magna cum laude*) Univ. of the Philippines, Diliman, Philippines  
(conc. in pure mathematics & operations research)

**B. S. Chemistry** (*magna cum laude*) Univ. of the Philippines, Diliman, Philippines  
(conc. in organic chemistry & biochemistry)

**Certificates/Diplomas:**

**Prof. Cert. in Drug Disc. & Dev.**, UCSD School of Extended Studies, *Ongoing*

**Spec. Cert. in Data Mining**, UCSD School of Extended Studies, *Winter 2007*

**Prof. Cert. in Bioinformatics**, UCSD School of Extended Studies, *Spring 2004*

**Spec. Cert. In Bioinformatics**, UCSD School of Extended Studies, *Spring 2002*

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**CAREER HISTORY:**

**IRACDA Postdoctoral Fellow**, UCSD Dept. of Pharmacology, SOM, 2/2004- present  
(*computational biology/structural bioinformatics*)

**Structural Bioinformatics Researcher**, San Diego Supercomputer Center, 2002-'04  
(*structural bioinformatics*)

**Bioinformatics studies**, UCSD School of Extended Studies, La Jolla, CA, 2000-'02  
(*general bioinformatics*)

**Senior Research Associate**, The Scripps Research Institute, La Jolla, CA, 1995-'00  
(*protein x-ray crystallography; structure-based drug design*)

**Postdoctoral Biochemist**, Dept. of Chem. & Biochem., UCSD, La Jolla, CA, 1992-'95  
(*protein x-ray crystallography; structural enzymology*)

**Postdoctoral Biologist**, Dept's. of Biol. & Med., UCSD, La Jolla, CA 1990-'92  
(*HIV/AIDS molecular biology*)

**Postdoctoral Research Fellow**, Lab.Tum. Cell Biol., NCI/NIH, Bethesda, MD 1988-'89  
(*HIV/AIDS molecular biology*)

**Graduate Student & Teaching Assistant**, Dept. of Biol., CIT, Pasadena, CA 1983-'88  
(*gene expression molecular biology*)

**Instructor in Mathematics**, Dept. of Math., Univ. of the Phils., Diliman, Phils., 1980-'82  
(*differential and integral calculus I, II, and III; statistics*)

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### **AWARDS:**

- IRACDA Postdoctoral Scholars Program, NIGMS, NIH, 2004-'07
- Bioinformatics Career Development WIA Award, State of California, 2002-'03
- Postdoctoral Research Fellowship, NIGMS, NIH, 1992-'95
- John E. Fogarty International Postdoctoral Research Fellowship, NCI, NIH, 1988-'89
- Laszlo Zechmeister Graduate Fellowship in Chemistry, CIT, 1983-'85
- Nat'l. Undergrad. Science & Mathematics Scholarships, NSDB, Philippines, 1976-'80

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### **PATENTS and COPYRIGHTS:**

- "Novel, Analytical Algorithm for High-Throughput Structure-Based Prediction of Ligand Binding Sites in Proteins" (UCSD copyright; Docket # SD2007-164).
- "Novel, Analytical Algorithm for High-Throughput Structure-Based Prediction of Protein-Protein Interaction Partners" (UCSD copyright; Docket # SD2007-165)
- "Representing Protein Structures in Spherical Coordinates: Two Applications" (provisional UCSD patent; Docket # SD2008-087).
- "Two Algorithms For Quantifying Ligand Binding Site Burial in Proteins" (provisional UCSD patent; Docket # SD2008-086).

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### **FORMAL GRANTSMANSHIP TRAINING:**

- NIGMS/UoK Internet Grant Writing Workshop (<http://www.uky.edu/Projects/GrantWriting>), University of Kentucky, Lexington KY, Prof. Donald Frazier, UoK Sch. of Med., Director, May, 2005
- NIGMS/UoK Internet Grant Writing Workshop (<http://www.uky.edu/Projects/GrantWriting>), University of Kentucky, Lexington KY, Prof. Donald Frazier, UoK Sch. of Med., Director, May, 2006

- NIGMS/UoK Internet Grant Writing Workshop (<http://www.uky.edu/Projects/GrantWriting>), University of Kentucky, Lexington KY, Prof. Donald Frazier, UoK Sch. of Med., Director, May, 2007
- Grant Writing Workshop-Seminar, Grant Writers' Seminars and Workshops, LLC (<http://www.grantcentral.com>), Drs. Stephen W. Russell & David C. Morrison, Lecturers, Pasadena Civic Auditorium, Pasadena, CA Sept., 2005

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## PUBLICATIONS:

- 14: **Reyes, V.M.** "Representing Protein 3D Structures in Spherical Coordinates: Two Applications: (1.) Detection of Invaginations and Protrusions on the Protein Surface; and (2.) Separating the Protein Hydrophobic Inner core from the Hydrophilic Outer layer" (2009e) *To be submitted.*
- 13: **Reyes, V.M.** "Two Complementary Methods for Quantifying Ligand Binding Site Burial Depth In Proteins: (1.) The 'Cutting Plane' Method; and (2.) The 'Tangent Sphere' Methods" (2009d) *To be submitted.*
- 12: **Reyes, V.M.** "Modeling Protein-Protein Interface Interactions as a Means for Predicting Protein-Protein Interaction Partners" (2009c) *To be submitted.*
- 11: **Reyes, V.M.** "Pharmacophore Modeling Using a Reduced Protein Representation: Application to ATP, GTP, Sialic Acid, Retinoic Acid and Heme-Bound and -Unbound Nitric Oxide." (2009b) *To be submitted.*
- 10: **Reyes, V.M.** "Pharmacophore Modeling Using a Reduced Protein Representation as a Tool for Structure-Based Protein Function Prediction" (2009a) *Submitted and under revision.*
- 9: Li, W., Byrnes, R.W., Hayes, J., Birnbaum, A., **Reyes, V.M.**, Shahab, A., Mosley, C., Pekurovsky, D., Quinn, G.B., Shindyalov, I.N., Casanova, H., Ang, L., Berman, F., Arzberger, P.W., Miller, M., Bourne, P.E. "The Encyclopedia of Life Project: Grid Software and Deployment." *New Gener. Comp.* (2004) 22:127-136.
- 8: Bourne, P., Miller, M., Baldrige, K., Baru, C., Berman, F., Byrnes, R., Casanova, H., Cotofana, N., Fountwain, T., Greenberg, J., Li, W., Mosley, C., Pekurovsky, D., Quinn, G., **Reyes, V.**, Shin, P., Shindyalov, I., Veretnik, S. "Encyclopedia of Life: to Open New Chapter of Biological Discovery." *SDSC & NPACI EnVision*, (2003) Vol. 19, No. 1, pp. 3-5
- 7: **Reyes, V.M.**, Greasley, S.E., Stura, E.A., Beardsley, G.P., Wilson, I.A. "Crystallization and preliminary crystallographic investigations of avian 5-aminoimidazole-4-carboxamide ribonucleotide transformylase-inosine monophosphate cyclohydrolase expressed in *Escherichia coli*." *Acta Crystallogr D Biol Crystallogr.* (2000) Aug;56 (Pt 8):1051-4.

6: Lee, H., \***Reyes, V.M.**, Kraut, J. "Crystal structures of Escherichia coli dihydrofolate reductase complexed with 5-formyltetrahydrofolate (folinic acid) in two space groups: evidence for enolization of pteridine O4." *Biochemistry*. (1996) Jun 4;35(22):7012-20. (\*corresponding author)

5: **Reyes, V.M.**, Sawaya, M.R., Brown, K.A., Kraut, J. "Isomorphous crystal structures of Escherichia coli dihydrofolate reductase complexed with folate, 5-deazafofolate, and 5,10-dideazatetrahydrofolate: mechanistic implications." *Biochemistry*. (1995) Feb 28;34(8):2710-23.

4: **Reyes, V.M.**, Abelson, J.N. "In vitro synthesis of end-mature, intron-containing transfer RNAs." *Methods Enzymol.* (1989);180:63-9.

3: **Reyes, V.M.**, Abelson, J. "Substrate recognition and splice site determination in yeast tRNA splicing." *Cell*. (1988) Nov 18;55(4):719-30.

2: **Reyes, V.M.**, Abelson, J. "A synthetic substrate for tRNA splicing." *Anal Biochem*. 1987 Oct;166(1):90-106.

1: **Reyes, V.M.**, Newman, A., Abelson, J. "Mutational analysis of the coordinate expression of the yeast tRNA<sup>Arg</sup>-tRNA<sup>Asp</sup> gene tandem." *Mol Cell Biol.* (1986) Jul;6(7):2436-42.