CURRICULUM VITAE
ALEXANDER DIKIY

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PERSONAL DATA: Date of birth: July 30, 1966
Place of birth: Lviv, USSR; Citizenship: Italian
Family status: married

EDUCATION: Graduated (with Honours) from the Moscow State University, Moscow, USSR, June 1988
Major: Chemistry; Minor: Biochemistry and Biotechnology.

Ph. D. obtained: October 20, 1992; Moscow State University.
Thesis: "Catalytic and Electron-Transfer Properties of Iron-Sulfur Clusters.
Doctor of Science (habilitation): May 11, 2001, Moscow State University.
Doctoral Thesis: “Investigation of structure-function relationships for paramagnetic metalloproteins using NMR spectroscopy”

HONORS and MEMBERSHIPS: Winner of the fellowship of the International Centre of Genetic Engineering and Biotechnology at the United Nation Industry Development Organization; Member of the Mendeleev Chemical Society, Member of the Italian Chemical Society, Member of the Society of Bioinorganic Chemistry (SBIC), Member of the Organizing Committee of the Advanced NATO Workshop on Biotechnological Bioremediation of Contaminated Sites (Lviv, Ukraine), March 4-10, 1995; Member of the Welcoming Committee of the XXXIII ICCC (Florence, Italy), August 30 – September 4, 1998; Recipient of the Wenner-Green Fonundation fellowship as a distinguished lecturer (University of Lund (Sweden), 2000), Director of Ph.D. research training course sponsored by NordForsk “High-Speed NMR Protein Structure Analysis” – June 17-22, 2007, 2005-2008 – a member of NMR National Norwegian Committee, the president of the Norwegian Magnetic Resonance Society; organizer of the 10th Norwegian National NMR Meeting - Oppdal, 15-18 January, 2008; Director of Ph.D. research training course sponsored by NordForsk “Macromolecular Interactions – Biology and Emerging Tools” – September 12-17, 2009; Member of the Board of the National Norwegian “BioStruct” Ph.D. school.

FOREIGN LANGUAGES: English (fluent), Italian (fluent), Polish, Ukrainian (mother tongue), Russian (mother tongue), Norwegian.

PROFESSIONAL EXPERIENCE:

1983 - 1988 - student at the Chemistry Department, Moscow State University;
1988 - 1992 - Ph.D. student at the Chemistry Department, Moscow State University;
1992 - 1994 - Bruker Spectrospin research fellowship, Department of Chemistry, University of Florence;

1994 - 1996 - ICGEB/UNIDO fellowship on biotechnology and molecular biology; Department of Chemistry, University of Florence;
1996 - 1997 - Research Fellowship at European NMR Large Scale Facility Laboratory, Department of Chemistry, University of Florence;
1997 - 2002 - Research Associate at the Department of Agro-Environmental Sciences and Technology, University of Bologna;
1998 – 2003 – Professor-Lecturer at the Biotechnology Department, University of Bologna;
2003 – 2004 – Research Assistant Professor, Department of Biochemistry, University of Nebraska, Lincoln.
2004 – present - Associate Professor, Department of Biotechnology, Faculty of Natural Sciences and Technology, Norwegian University of Science and Technology.

RESEARCH EXPERIENCE:

Recombinant DNA techniques: PCR, gene cloning, site directed mutagenesis, gene fusion, DNA extraction and characterization;

Work with various bacteria, microorganisms, eukaryotic cells;

Expression, isolation and purification of proteins and enzymes;

Determination of biomolecules solution structures through NMR;

MS studies of proteins and natural compounds;

Natural molecules structure modelling;

Determination of structure-function relationships within biomolecules;

Elucidation of protein-biomolecule interaction;

Investigation of catalytic mechanisms of biologically relevant transformations.

RESEARCH INTERESTS:

Molecular basis of diseases, Biomolecular NMR, MS characterization of biomolecules, Redox Biology, Proteomics, Ageing Research, Elucidation of Structure-function relationships in biological systems

PUBLICATIONS:

In the publications with the group of Prof. Ivano Bertini authors follow an alphabetic order;

*** indicates major contribution of Dr. Dikiy (equivalent to first author).**

1. A. Yatsimirsky, A. Dikiy, "Catalytic Hydrolysis of Aryl Esters by an Iron-Sulfur Cluster", *Inorg. Chim. Acta* 186 (1991), 161.

2. A. Dikiy, A. Yatsimirsky, "Kinetics of Catalytic Hydrolysis of Esters in the Presence of Iron-Sulfur Clusters", *Kinetics and Catalysis* 33 (1992), N 5-6, 1080-1086.

3. I. Bertini, A. Dikiy, C. Luchinat, M. Piccioli, D. Tarchi, "NOE-NOESY: A Further Tool in NMR of Paramagnetic Metalloproteins", *J. Magn. Resonance*, Serie B 103 (1993), 278-283.

* 4. I. Bertini, S. Ciurli, A. Dikiy, C. Luchinat, "The Electronic Structure of the [4Fe-4Se]$^{3+}$ Clusters in *C. vinosum* HiPIP and *E. halophila* HiPIP II through NMR and EPR Studies", *J. Am. Chem. Soc.* 115 (1993), 12020-12028.

* 5. L. Banci, I. Bertini, M. T. Cambria, F. Capozzi, A. Dikiy, "^{1}H 1D and 2D Studies of Cytochrome *c* from *Rhodocyclus gelatinosus*", *Eur. J. Biochem.* 219 (1994), 663-669.

* 6. L. Banci, I. Bertini, A. Dikiy, D. Kastrau, C. Luchinat, P. Sompornpisut, "The Three-Dimensional Solution Structure of the Reduced High Potential Iron-Sulfur Protein from *Chromatium vinosum* through NMR", *Biochemistry* 34 (1995), 206-219.

* 7. I. Bertini, A. Dikiy, D. Kastrau, C. Luchinat, P. Sompornpisut, "The Three-Dimensional Solution Structure of the Oxidized High Potential Iron-Sulfur Protein from *Chromatium vinosum* through NMR. Comparatvie Analysis with the Structure of the Reduced Species", *Biochemistry* 34 (1995), 9851-9858.

8. I. Bertini, F. Capozzi, A. Dikiy, B. Happe, C. Luchinat, and K.N. Timmis, "Evidence of Histidine Coordination to the Catalytic Ferrous Ion in the Ring-cleaving 2,2'3-trihydroxybiphenyl Dioxygenase from the Dibenzofuran-degrading Bacterium *Sphingomonas sp* strain RW1", *Biochem. Biophys. Res. Commun.* 215 (1995), 855-860.

* 9. E. Babini, I. Bertini, M. Borsari, F. Capozzi, A. Dikiy, L.D. Eltis, and C. Luchinat, "A Serine→Cysteine Ligand Mutation in the High Potential Iron-Sulfur Protein from *Chromatium vinosum* Provides Insight into the Electronic Structure of the [4Fe-4S] Cluster", *J. Am. Chem. Soc,* 118 (1996), 75-80 .

* 10. D. Bentrop, I. Bertini, F. Capozzi, A. Dikiy, L.D. Eltis, and C. Luchinat, "The Three Dimensional Structure of the Reduced C77S Mutant of the *Chromatium vinosum*

High Potential Iron-Sulfur Protein through NMR. Comparison with the Solution Structure of the Wild-type protein", *Biochemistry* 35 (1996), 5928-5936.

***** 11. I. Bertini, A. Coutsolelos, A. Dikiy, C. Luchinat, G. Spyroulias, and A. Troganis, "Structural and Dynamic Information on Double-Decker Yb^{3+} and Dy^{3+} Porphyrin Complexes in Solution through ^1H NMR", *Inorg. Chem.* 35 (1996), 6308-6315.

12. J. Bujons, A. Dikiy, J.C. Ferrer, L. Banci, and A.G. Mauk, "Charge Reversal of a Critical Active Site Residue of Cytochrome-*c* Peroxidase. Characterization of the Arg48→Glu Variant", *Eur. J. Biochem.* 243 (1997), 72-84.

***** 13. I. Bertini, A. Dikiy, C. Luchinat, R. Macinai, M. S. Viezzoli and M. Vincenzini, "An NMR Study of the [7Fe-8S] Ferredoxin from *Rhodopseudomonas palustris* and Reinterpretation of Data on Similar Systems", *Biochemistry* 36 (1997), 3570-3579.

***** 14. I. Bertini, A. Dikiy, C. Luchinat, R. Macinai and M. S. Viezzoli, "An Extensive NMR Study of the Reduced Cytochrome c' from *Rhodopseudomonas palustris", Inorg. Chem.* 37 (1998), 4814-4821.

15. S. Benini, M. Borsari, S. Ciurli, A. Dikiy, M. Lamborghini, "Modulation of *Bacillus pasteurii* Cytochrome c-553 Reduction Potential by Structural and Solution Parameters", *J. Biol. Inorg. Chem.* 3 (1998), 371-382.

16. N. Safarov, R. Agalarov, M. Isaev, A. Dikiy, R. Gasanov, "Isolation and Spectroscopic Characterization of Cytochrome c_6 from *Cladophora glomerata*", in *"Progress in Botanical Research"*, 1998, Kluwer Academic Publishers, Dordrecht, p.235-238.

***** 17. I. Bertini, S. Ciurli, A. Dikiy, R. Gasanov, C. Luchinat, G. Martini and N. Safarov, "High-Field NMR Studies of Oxidized Blue Copper Proteins: the Case of Spinach Plastocyanin", *J. Am. Chem. Soc.* 121 (1999), 2037-2046.

***** 18. M. Borsari, E. Dikaya, A. Dikiy, M. Gonchar, M. Maidan, R. Pierattelli and A. Sibirny, "Isolation and Physico-Chemical Characterization of the Cytochrome *c* from Methylotrophic Yeast *Hansenula polymorpha*", *Biochem. Biophys. Acta* 1543 (2000), 174-188.

19. S. Babailov, A. Coutsolelos, A. Dikiy and G. Spyroulias, "Intramolecular Dynamics of Asymmetric Lanthanide (III) Porphyrin Sandwich Complexes in Solution", *Eur. J. Inorg. Chem*. (2001), 303-306.

***** 20. I. Bertini, S. Ciurli, A. Dikiy, C. Fernàndez, C. Luchinat, N. Safarov, S. Shumilin and A. Vila, "The First Solution Structure of a Paramagnetic Copper (II) Protein:

the Case of Oxidized Plastocyanin from the Cyanobacterium *Synechocystis* sp. PCC6803", *J. Am. Chem. Soc.* 123 (2001), 2405-2413.

21. E. Ryabova, A. Dikiy, S. Ciurli and E. Nordlander, "Heme-containing Peptides as Models for Peroxidases", *J. Inorg. Biochem.* 86 (2001), 413.

22. I. Bartalesi, L.Banci, I. Bertini, S. Ciurli, A.Dikiy, J.Dittmer, A. Rosato, G. Sciara, A. Thompsett and P. Vasos, "NMR Solution Structure, Backbone Mobility and Homology Modeling of Bacterial Cytochromes c*", J. Inorg. Biochem.* 86 (2001), 497.

***** 23. A. Dikiy, R. Funhoff, B.Averill and S. Ciurli, "^{1}H NMR Investigation of Recombinant Human Purple Acid Phosphatase", *J. Inorg. Biochem.* 86 (2001), 512.

24. A. Dikiy, "Structural investigations of paramagnetic metalloproteins using NMR spectroscopy: iron-sulfur and copper-containing proteins", *Russian Chemical Bulletin* 50(10) (2001), 1762-1788.

***** 25. I. Bertini, D. Bryant, S. Ciurli, A. Dikiy, C. Fernàndez, C. Luchinat, N. Safarov, A. Vila and J. Zhao, "Backbone Dyanamics of Plastocyanin in both Oxidation States. Solution Structure of the Reduced Form and Comparison with the Oxidized State", *J. Biol. Chem.* 276 (2001), 47217-47226.

26. L. Banci, I. Bertini, S. Ciurli, A. Dikiy, J. Dittmer, A. Rosato, G. Sciara, A. R. Thompsett, "Solution Structure, Backbone Mobility and Homology Modelling of *c*-type Cytochromes from Gram-positive Bacteria", *Chem.Bio.Chem.* 3 (2002), 299-310.

27. S. Ciurli, N. Safarov, S. Miletti, A. Dikiy, S. K. Christensen, K. Kornetzky, D. A. Bryant, I. Vandenberghe, B. Devreese, H. Remaut, J. Van Beeumen, "Molecular Characterization of *Bacillus pasteurii* UreE, a Metal-binding Chaperone for the Assembly of the Urease Active Site", *J. Biol. Inorg. Chem.* 7 (2002), 623-631.

28. A. Dikiy, E. G. Funhoff, B. A. Averill, S. Ciurli, "New Insights into the Mechanism of Purple Acid Phosphatase through ^{1}H NMR Spectroscopy of the Recombinant Human Enzyme", *J. Am. Chem. Soc. 124* (2002), 13974-13975.

29. A. Dikiy, W. Carpentier, I. Vandenberghe, M. Borsari, N. Safarov, E. Dikaya, J. Van Beeumen, S. Ciurli, "Structural Basis for the Molecular Properties of Cytochrome c6 from the Green Alga *Cladophora glomerata"*, *Biochemistry 41* (2002), 14689-14699.

30. E. S. Ryabova, A. Dikiy, A. E. Hesslein, M. J. Bjerrum, S. Ciurli, E. Nordlander, "Preparation and reactivity studies of synthetic microperoxidases containing b-type heme", *J Biol Inorg Chem. 9* (2004), 385-395.

31. B. Zambelli, M. Stola, F. Musiani, K. De Vriendt, B. Samyn, B. Devreese, J. Van Beeumen, P. Turano, A. Dikiy, D. A. Bryant, S. Ciurli, "UreG, a chaperone in the urease assembly process, is an intrinsically unstructured GTPase that specifically binds Zn^{2+}", *J. Biol. Chem.* 280 (2005), 4684-4695.

32. F. Musiani, A. Dikiy, A. Y. Semenov, S. Ciurli, "Structure of the Intermolecular Complex between Plastocyanin and Cytochrome f from Spinach", *J. Biol. Chem.* 280 (2005), 18833-18841.

33. A. Dikiy, S.V. Novoselov, D.E. Fomenko, A. Sengupta, B.A. Carlson, R.L. Cerny, K. Ginalski, N.V. Grishin, D.L. Hatfield, V.N. Gladyshev, "SelT, SelW, SelH and Rdx12: genomics and molecular insights into the functions of selenoproteins of a novel thioredoxin-like family", *Biochemistry* 46 (2007), 6871-6882.

34. L.S. Sal, F.L. Aachmann, H.-Y. Kim, V.N. Gladyshev, A.Dikiy, "NMR assignment of 1H, 13C and 15N spectra of methionine sulfoxide reductase B1 from Mus Musculus", *Biomol. NMR Assign.*, 1 (2007), 131-133.

35. F.L. Aachmann, D.E. Fomenko, A. Soragni, V.N. Gladyshev, A. Dikiy, "Solution Structure of Selenoprotein W and NMR Analysis of its Interaction with 14-3-3 Proteins", *J.Biol. Chem.* 282 (2007), 37036-37044.

36. Å Breivik., F.L. Aachmann, L.S. Sal, H.-Y. Kim., R. Del Conte, V.N. Gladyshev, A. Dikiy, "^{1}H, ^{15}N and ^{13}C NMR Assignments of Mouse Methionine Sulfoxide Reductase B2", *Biomol. NMR Assign.*, 2 (2008), 199-201.

37. T. Brautaset, H. Sletta, A. Nedal, S.E.F. Borgos, E.M. Olsufyeva, M.N. Preobrazhenskaya, O.N. Sekurova, I. Bakke, O. Volokhan, I.D.Treshalin, E.P. Mirchink, A. Dikiy, T.E. Ellingsen, S.B. Zotchev, "Improved Antifungal Polyene Macrolides via Engineering of the Nystatin Biosynthetic Genes in *Streptomyces noursei*", *Chemistry & Biology*, 15 (2008), 1198-1206.

38. B.C. Lee, A. Dikiy, HY. Kim, V.N. Gladyshev, "Functions and Evolution of Selenoprotein Methionine Sulfoxide Reductases", *Biochim Biophys Acta,* 1790 (2009), 1471-1477.

39. H. Jørgensen, K.F. Degnes, H. Sletta, E. Fjaervik, A. Dikiy, L. Herfindal, P. Bruheim, G. Klinkenberg, H. Bredholt, G. Nygård, S. O. Døskeland, T. E. Ellingsen, S. B. Zotchev, "Biosynthesis of Macrolactam BE-14106 Involves Two Distinct PKS Systems and Amino Acid Processing Enzymes for Generation of the Aminoacyl Starter Unit", *Chem Biol.,* 16 (2009), 1109-1121.

40. H. Jørgensen, K. F. Degnes, A. Dikiy, E. Fjaervik, G. Klinkenberg, S. B. Zotchev, ”Insights into the Evolution of Macrolactam Biosynthesis Through Cloning and Comparative Analysis of the Biosynthetic Gene Cluster for a Novel Macrocyclic Lactam, ML-449”, *Appl. Environ. Microbiol.,* 76 (2010), 283-293.

41. Y. Fuentes-Martínez, C. Godoy-Alcántar, F. Medrano, A. Dikiy, A.K. Yatsimirsky, ”Nucleotide recognition by protonated aminoglycosides”,*Supramolecular Chemistry*, 22 (2010), 212–220.

42. Y. Fuentes-Martнnez, C. Godoy-Alcбntar, F. Medrano, Alexander Dikiy, A. K. Yatsimirsky, “Protonation of kanamycin A: Detailing of thermodynamics and protonation sites assignment”, *Bioorganic Chemistry,* 38 (2010), 173–180.

43. F. L. Aachmann, L. S. Sal, H. Y. Kim, S. M. Marino, V. N.Gladyshev, A. Dikiy, “Insights into function, catalytic mechanism and fold evolution of selenoprotein methionine sulfoxide reductase B1 through structural analysis”, *J. Biol. Chem*. (2010), 285, 33315-33323.

44. F. Musiani, S. Ciurli, A. Dikiy “The interaction of selenoprotein W with 14-3-3 proteins: a computational approach”, *J Proteome Res*. (2011), 10, 968-976.

45. S. Marino, V. Gladyshev, A.Dikiy, “Structural Characterization of Mammalian Selenoproteins”, in “*the 3rd Edition of "Selenium: Its molecular biology and role in human health*", Springer, 2011, in press.

46. F. L. Aachmann, G-H. Kwak, R. Del Conte, H-Y. Kim, V. N. Gladyshev and A. Dikiy “Structural and Biochemical Analysis of Mammalian Methionine Sulfoxide Reductase B2”, *PROTEINS (*2011), in press.

47. E. Shumilina, A. Soldà, M. Gerashchenko, V. N. Gladyshev and A. Dikiy “^{1}H, ^{13}C, and ^{15}N NMR resonance assignments of reduced full length and shortened forms of the Grx domain of *Mus musculus* TGR”, *Biomol. NMR Assign*. (2011), in press.