



Curriculum vitae

Personal Data

Name	So Iwata
Age	45
Date of Birth	June 1, 1963
Nationality	Japanese
Civil status	Married, No child
Working address	Division of Molecular Biosciences Biological Sciences Imperial College London London SW7 2AZ FAX: 020-7594-3022 Tel: 020-7594-3064 e-mail: s.iwata@imperial.ac.uk
Current positions	Director of Centre for Structural Biology and David Blow Chair of Biophysics in Division of Molecular Biosciences, Imperial College, London Diamond Fellow, Diamond Light Source, UK Research Director of ERATO (Exploratory Research for

Advanced Technology) Iwata Human Receptor Crystallography

Senior Visiting Scientist, Riken Yokohama Institute, Yokohama,
Japan

Professor

Graduate School of Medicine, Kyoto University, Japan

Former positions

1991-1992 Research fellow with Prof. Noriyoshi Sakabe at the Photon
Factory, National Laboratory for High Energy Physics, Tsukuba

1992-1996 Postdoctoral fellow at Max-Planck-Institute for
Biophysics, Frankfurt am Main, Germany.

1996-1999 Lecturer at Uppsala University, Department of Biochemistry

1999-2000 Professor of Biochemistry at Uppsala University

Degrees

B.Sc. (March, 1986): Undergraduate at the University of Tokyo.

B.Sc. obtained in 1986

M.Sc. (March, 1988): University of Tokyo. Thesis: "Characterisation and Allosteric
Properties of L-Lactate Dehydrogenase from Biffidobacterium
longum (BLLDH)" Supervisor: Prof. T. Ohta.

Ph.D. (March, 1991): University of Tokyo. Thesis: "The Crystal Structure of L-
Lactate Dehydrogenase from Biffidobacterium longum : Structural
Changes during Allosteric Transitions". Supervisors Prof. T. Ohta
Department of Agricultural Chemistry, University of Tokyo) and Prof.
N. Sakabe (Photon Factory, National Laboratory for High Energy
Physics, Tsukuba)

Prizes and Awards

Prize

- 1998 The Svedberg prize from the Swedish society for biochemistry and molecular biology
- 1999 Lindbom prize from the Royal Swedish Academy of Science.
- 2007 JSPS Prize
Japan Academy Medal from the Japan Academy

Other awards

- 2005 Japan Science Technology Agency, ERATO award.
- 2004 BBSRC Japan Partnering Award 2004
- 2002 BBSRC Japan Partnering Award 2002
- 1996 Human Frontier Science Project Fellowship
- 1992 Fellowship from the Japanese Society for the Promotion of Science

Current positions

David Blow Chair of Biophysics and Director of Centre for Structural Biology at Division of Molecular Biosciences, Imperial College London

Diamond Fellow
Diamond Light Source

ERATO (Exploratory Research for Advanced Technology) Research Director of IWATA Humane Receptor Crystallography, Japan

Senior visiting scientist of Riken Yokohama Institute, Japan

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Former positions

1991-1992 Research fellow with Prof. Noriyoshi Sakabe at the Photon

Factory, National Laboratory for High Energy Physics,
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- 1992-1996 Postdoctoral fellow at Max-Planck-Institute for
Biophysics, Frankfurt am Main, Germany.
- 1996-1999 Lecturer at Uppsala University, Department of Biochemistry
- 1999-2000 Professor of Biochemistry at Uppsala University

Journal Articles

Jormakka, M, Yokoyama, K, Yano, T, *et al.*, **Molecular mechanism of energy conservation in polysulfide respiration**, NAT STRUCT MOL BIOL, 2008, Vol: 15, Pages: 730 - 737, ISSN: 1545-9985

Ito, K, Sugawara, T, Shiroishi, M, *et al.*, **Advanced method for high-throughput expression of mutated eukaryotic membrane proteins in *Saccharomyces cerevisiae***, BIOCHEM BIOPH RES CO, 2008, Vol: 371, Pages: 841 - 845, ISSN: 0006-291X

Kouwen, TRHM, Andrell, J, Schrijver, R, *et al.*, **Thioredoxin A active-site mutants form mixed disulfide dimers that resemble enzyme-substrate reaction intermediates**, J MOL BIOL, 2008, Vol: 379, Pages: 520 - 534, ISSN: 0022-2836

Drew, D, Newstead, S, Sonoda, Y, *et al.*, **GFP-based optimization scheme for the overexpression and purification of eukaryotic membrane proteins in *Saccharomyces cerevisiae***, Nat Protoc, 2008, Vol: 3, Pages: 784 - 798, ISSN: 1750-2799

Newstead, S, Ferrandon, S, Iwata, S, **Rationalizing alpha-helical membrane protein crystallization**, PROTEIN SCI, 2008, Vol: 17, Pages: 466 - 472, ISSN: 0961-8368

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Guan, L, Mirza, O, Verner, G, *et al.*, **Structural determination of wild-type lactose permease**, P NATL ACAD SCI USA, 2007, Vol: 104, Pages: 15294 - 15298, ISSN: 0027-8424

Newstead, S, Kim, H, von Heijne, G, *et al.*, **High-throughput fluorescent-based optimization of eukaryotic membrane protein overexpression and purification in *Saccharomyces cerevisiae*.**, Proc Natl Acad Sci U S A, 2007, Vol: 104, Pages: 13936 - 13941, ISSN: 0027-8424

Shimizu-Ibuka, A, Morita, Y, Terada, T, *et al.*, **Crystal structure of neoculin: Insights into its sweetness and taste-modifying activity**, J MOL BIOL, 2006, Vol: 359, Pages: 148 - 158, ISSN: 0022-2836

Horsefield, R, Yankovskaya, V, Sexton, G, *et al.*, **Structural and computational analysis of the quinone-binding site of complex II (succinate-ubiquinone oxidoreductase): a mechanism of electron transfer and proton conduction during ubiquinone reduction.**, J Biol Chem, 2006, Vol: 281, Pages: 7309 - 7316, ISSN: 0021-9258

Mirza, O, Guan, L, Verner, G, *et al.*, **Structural evidence for induced fit and a mechanism for sugar/H⁺ symport in LacY.**, EMBO J, 2006, Vol: 25, Pages: 1177 - 1183, ISSN: 0261-4189

Iwata, S, **Structure and mechanism of membrane transporters**, BBA-BIOENERGETICS, 2006, Pages: 43 – 43

Makyio, H, Iino, R, Ikeda, C, *et al.*, **Structure of a central stalk subunit F of prokaryotic V-type ATPase/synthase from *Thermus thermophilus***, EMBO J, 2005, Vol: 24, Pages: 3974 - 3983, ISSN: 0261-4189

Iwata, S, **[Membrane proteins: the last frontier of structural biology]**, Tanpakushitsu Kakusan Koso, 2005, Vol: 50, Pages: 197 - 206, ISSN: 0039-9450

Horsefield, R, Yankovskaya, V, Byrne, B, *et al.*, **The structure of complex II and its quinone-binding site**, BBA-BIOENERGETICS, 2004, Vol: 1658, Pages: 165 - 165

Jormakka, M, Richardson, D, Byrne, B, *et al.*, **Architecture of NarGH reveals a structural classification of Mo-bisMGD enzymes.**, Structure, 2004, Vol: 12, Pages: 95 - 104, ISSN: 0969-2126

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- Iwata, S, **[Structure and function of lactose permease from Escherichia coli]**, Tanpakushitsu Kakusan Koso, 2004, Vol: 49, Pages: 1212 - 1218, ISSN: 0039-9450
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- Iwata, S, Barber, J, **Structure of photosystem II and molecular architecture of the oxygen-evolving centre.**, Curr Opin Struct Biol, 2004, Vol: 14, Pages: 447 - 453, ISSN: 0959-440X
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Iwata, S, Lee, JW, Okada, K, *et al.*, **Complete structure of the 11-subunit bovine mitochondrial cytochrome bc(1) complex**, SCIENCE, 1998, Vol: 281, Pages: 64 - 71, ISSN: 0036-8075

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Michel, H, Ostermeier, C, Iwata, S, **Crystallization, structure and possible mechanisms of action of cytochrome C oxidase**, BIOPHYS J, 1996, Vol: 70, Pages: MAMS4 - MAMS4, ISSN: 0006-3495

Iwata, S, Saynovits, M, Link, TA, *et al.*, **Structure of a water soluble fragment of the "Rieske" iron-sulfur protein of the bovine heart mitochondrial cytochrome bc1 complex determined by MAD phasing at 1.5 Å resolution.**, Structure, 1996, Vol: 4, Pages: 567 - 579, ISSN: 0969-2126

Link, TA, Saynovits, M, Assmann, C, *et al.*, **Isolation, characterisation and crystallisation of a water-soluble fragment of the Rieske iron-sulfur protein of bovine heart mitochondrial bc(1) complex**, EUR J BIOCHEM, 1996, Vol: 237, Pages: 71 - 75, ISSN: 0014-2956

Link, TA, Iwata, S, **Functional implications of the structure of the "Rieske" iron-sulfur protein of bovine heart mitochondrial cytochrome bc(1) complex**, BBA-BIOENERGETICS, 1996, Vol: 1275, Pages: 54 - 60, ISSN: 0005-2728

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Ostermeier, C, Iwata, S, Michel, H, **Cytochrome c oxidase.**, Curr Opin Struct Biol, 1996, Vol: 6, Pages: 460 - 466, ISSN: 0959-440X

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Kleymann, G, Iwata, S, Wiesmüller, KH, *et al.*, **Immunoelectron microscopy and epitope mapping with monoclonal antibodies suggest the existence of an additional N-terminal transmembrane helix in the cytochrome b subunit of bacterial ubiquinol:cytochrome-c oxidoreductases.**, Eur J Biochem, 1995, Vol: 230, Pages: 359 - 363, ISSN: 0014-2956

Iwata, S, Ohta, T, **Molecular basis of allosteric activation of bacterial L-lactate dehydrogenase.**, J Mol Biol, 1993, Vol: 230, Pages: 21 - 27, ISSN: 0022-2836

Prof. So Iwata 於 1991 年在 Prof. Ohta (農化)及 Prof. Sakabe (高能物理)的指導下於東京大學獲得博士學位，旋即進入 Photon Factory 與 Max-Planck-Institute for Biophysics (Germany) 進行博士後研究。1996 年拿到 Uppsala University (Sweden)的教職後，於 1999 升任正教授。爾後，在 2000 年加入 London Imperial College，並於 2005 年擔任 Chair of Membrane Protein Crystallography 與 Director of Centre for Structural Biology，並得到 David Blow Chair of Biophysics 的榮譽頭銜。

Prof. Iwata 是目前膜蛋白結晶繞射學的全球重要領導人之一，解過許多對細胞功能十分重要的膜蛋白結構，包括 cytochrome c oxidase、lactose permease 與 photosystem II。他目前的主要研

究興趣之一是建立測定人類膜蛋白原子級結構的新方法，包括針對作為許多藥物標的的重要分子 G-protein coupled receptors。他自 1992 年起，即完全投入膜蛋白相關研究，共至少解出了八個重要的膜蛋白結構；並經由這些結構，發現並釐清了一些基因性疾病的致病原因。他在解膜蛋白結構時導入並建立 Adopting Rational Approaches，包括在結晶時使用抗體片段與融合蛋白。他的許多研究結果在教科書中多有介紹 (Abramson and Iwata, 1999)。

Prof. Iwata 現為日本國家科學院院士，目前除任職於英國帝國學院 David Blow 生物物理講座外，亦與 Prof. Dame Louise Johnson 一同為英國 DLS (Diamond Light Source) 同步輻射之 MPL (Membrane Protein Lab) 計畫共同主持人。MPL 為 Wellcome Trust 自 2006 年六月起支持設立之專門用來提供研究並解出膜蛋白原子級結構的大型整合型實驗設施。除了主持諸多大型研究計畫外，Prof. Iwata 也積極審查有重要科學價值的膜蛋白結構合作計畫；現下亦為日本獨立行政法人科學技術振興機構 (JST: Japan Science and Technology Agency) 中探索性前瞻科技研究 (ERATO: Exploratory Research for Advanced Technology) 之 IWATA Human Receptor Crystallography Projects (2005-2011) 的總主持人。