

The Collected Works of --- DOROTHY CROWFOOT HODGKIN

VOLUME I
INSULIN



Editors : GG DODSON JP GLUSKER S RAMASESHAN K VENKATESAN

A Publication of Indian Academy of Sciences

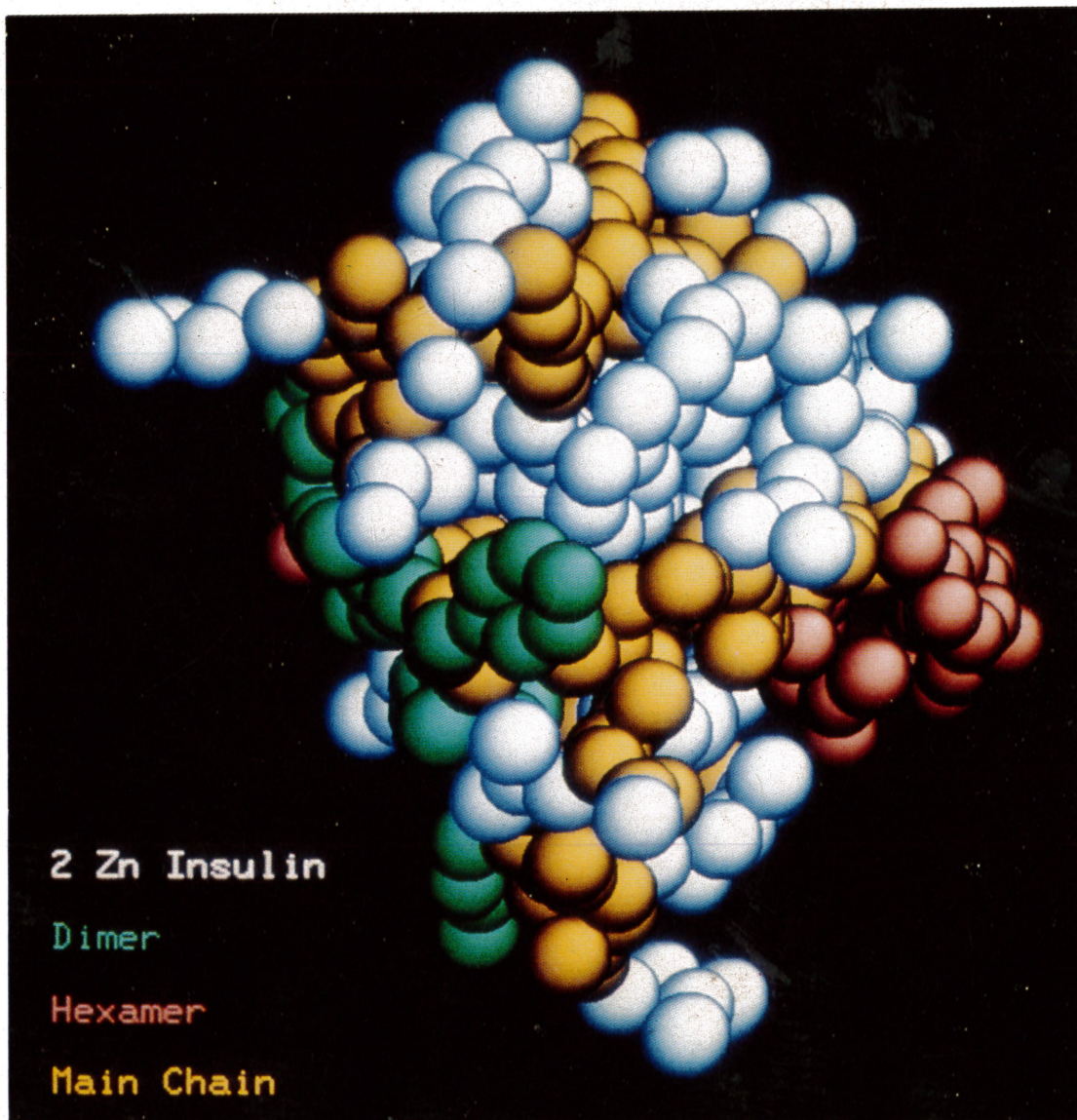
Contents

Foreword <i>G. Srinivasan</i>	v
Dorothy Crowfoot Hodgkin — An introduction to her work and personality <i>J.D. Dunitz</i>	vii
Forty years' friendship with Dorothy <i>Max Perutz</i>	xi
Dorothy Hodgkin and molecular biophysics in Oxford: A fragment of personal history <i>David Phillips</i>	xv
Meetings with Dorothy <i>B.K. Vainshtein</i>	xviii
Dorothy Hodgkin and the Indian connection <i>S. Ramaseshan</i>	xx
Dorothy and insulin crystallographic research in China <i>Dong-cai Liang and Chih-chen Wang</i>	xxviii
Dorothy Hodgkin, protein crystallography and insulin <i>G.G. Dodson</i>	xxxii
Address delivered by Guy Dodson at the funeral of Dorothy Hodgkin	xxxv
The papers	
1. X-ray single crystal photographs of insulin (<i>Nature</i> , 1935, 135 , 591–592) <i>Dorothy Crowfoot</i>	1
2. The two crystalline modifications of insulin (<i>Nature</i> , 1937, 140 , 149–150) <i>D. Crowfoot</i>	3
3. The crystal structure of insulin. I.. The investigation of air-dried insulin crystals (<i>Proc. R. Soc</i> ; 1938, A164 , 580–602) <i>Dorothy Crowfoot</i>	4
4. X-ray measurements on wet insulin crystals (<i>Nature</i> , 1939, 144 , 1011–1012) <i>Dorothy Crowfoot and Dennis Riley</i>	28
5. The crystal structure of insulin. II. An investigation of rhombohedral zinc insulin crystals and a report of other crystalline forms (<i>J.Mol. Biol.</i> , 1966, 16 , 212–226) <i>Marjorie M. Harding, Dorothy Crowfoot Hodgkin, Ann F. Kennedy, A. O'Connor and P.D.J. Weitzmann</i>	30
6. The crystal structure of insulin. III. Evidence for a 2-fold axis in rhombohedral zinc insulin (<i>J.Mol. Biol.</i> , 1966, 16 , 227–241) <i>Eleanor Dodson, Marjorie M. Harding, Dorothy Crowfoot Hodgkin and Michael G. Rossmann</i>	45
7. X-ray crystallographic studies on zinc insulin crystals (<i>Am.J. Med.</i> , 1966, 40 , 667–671) <i>M.G. Adam, L. Collier, Dorothy Crowfoot Hodgkin and G.G. Dodson</i>	60

8.	Structure of proteins. X-ray crystallographic studies on zinc insulin crystals (<i>Acta Crystallogr.</i> , suppl. 21, 1966, A156) <i>Margaret Adam, Eleanor Collier, Guy Dodson, Dorothy Crowfoot Hodgkin and S. Ramaseshan</i>	65
9.	A report on recent calculations on rhombohedral insulin crystals containing lead (<i>Conform. Biopolym.</i> , <i>Pap. Inst. Symp; Madras</i> , 1967, 1, 9-16) <i>M.J. Adams, G. Dodson, E. Dodson and Dorothy Crowfoot Hodgkin</i>	66
10.	Structure of rhombohedral 2 zinc insulin crystals (<i>Nature</i> , 1969, 224, 491-495) <i>M.J. Adams, T.L. Blundell, E.J. Dodson, G.G. Dodson, M. Vijayan, E.N. Baker, M.M. Harding, D.C. Hodgkin, B. Rimmer and S. Sheat</i>	72
11.	Struktur des insulins (<i>Chemiker-zeitung</i> , 1970, 94, 647-648) <i>Dorothy Crowfoot Hodgkin</i>	78
12.	The crystal structure of insulin (<i>Verh. schweiz. naturf. ges.</i> , 1970, 150, 93-101) <i>Dorothy Crowfoot Hodgkin</i>	79
13.	Demonstration (<i>Mem. Soc. Endocr.</i> , 1970, 19, 519-522) <i>Dorothy Crowfoot Hodgkin</i>	86
14.	X-rays and the structure of insulin (<i>Br. Med. J.</i> , 1971, 4, 447-451) <i>Dorothy Crowfoot Hodgkin</i>	90
15.	Atomic positions in rhombohedral 2-zinc insulin crystals (<i>Nature</i> , 1971, 231, 506-511) <i>T.L. Blundell, J.F. Cutfield, S.M. Cutfield, E.J. Dodson, G.G. Dodson, D.C. Hödgkin, D.A. Mercola and M. Vijayan.</i>	95
16.	The crystal structural of insulin and its relation to biological activity (<i>Chem. N.Z.</i> , 1971, 35, 130) <i>D.C. Hodgkin, E.N. Baker and others</i>	101
17.	Insulin molecules: the extent of our knowledge (<i>Pure Appl. Chem.</i> 1971, 26, 375-384) <i>Dorothy Crowfoot Hodgkin</i>	102
18.	The structure and biology of insulin (<i>Biochem. J.</i> , 1971, 125, 50-51) <i>T.L. Blundell, J.F. Cutfield, G.G. Dodson, E. Dodson, D.C. Hodgkin and D. Mercola</i>	110
19.	X-ray analysis and the structure of insulin (<i>Recent Prog. Horm. Res.</i> , 1971, 27, 1-40) <i>T.L. Blundell, G.G. Dodson, E. Dodson, D.C. Hodgkin and M. Vijayan</i>	112
20.	The crystal structure of rhombohedral 2 zinc insulin (<i>Cold Spring Harb. Symp. Quant. Biol.</i> , 1971, 36, 233-241) <i>T.L. Blundell, J.F. Cutfield, E.J. Dodson, G.G. Dodson, D.C. Hodgkin and D.A. Mercola</i>	143
21.	The structure of insulin (<i>Dansk. Tidsskr. Farm</i> , 1972, 46, 1-28) <i>Dorothy Crowfoot Hodgkin</i>	152
22.	Three-dimensional atomic structure of insulin and its relationship to activity (<i>Diabetes</i> , 1972, 21, Suppl. 2, 492-505) <i>T.L. Blundell, J.F. Cutfield, S.M. Cutfield, E.J. Dodson, G.G. Dodson, D.C. Hodgkin and D.A. Mercola</i>	180
23.	The Banting Memorial Lecture 1972. The structure of insulin (<i>Diabetes</i> , 1972, 21, 1131-1150) <i>Dorothy Crowfoot Hodgkin</i>	194

24. The secondary and tertiary structure of insulin (*Handbk. Physiol., Sect. 7, Endocrinol.* 1972, 1, 139–157) 214
Dorothy Crowfoot Hodgkin and Dan Mercola
25. The arrangement in three dimensions of the atoms in insulin molecules and crystals (*Insulin Action, Proc. Symp.* 1971,1972, pp. 1–28) 233
Dorothy Crowfoot Hodgkin, T.L. Blundell, J.F. Cutfield, S.M. Cutfield, G.G. Dodson, E.J. Dodson, D.A. Mercola and M. Vijayan
26. Crystal structure of insulin (*Soviet Phys. Crystallogr.*, 1972, 16, 1054–1059) 248
D.C. Hodgkin
27. Insulin: The structure in the crystal and its reflection in chemistry and biology (*Adv. Protein Chem.*, 1972, 26, 274–402) 253
Tom Blundell, Guy Dodson, Dorothy Hodgkin and Dan Mercola
28. Some features of the conformation of insulin molecules observed in 2 zinc rhombohedral insulin crystals (*Struct. Act. Relat. Protein Polypeptide Horm.*, Proc. 2nd Int. Symp. 1971, Excerpta Medica, 1972, pp. 161–166) 344
D Hodgkin and T.L. Blundell
29. The spatial structure of insulin and its relation to activity (*Pept., Proc. 12th Eur. Pept. Symp.* 1972,1973, pp.255–269). 350
T.L. Blundell, J. Cutfield, S. Cutfield, G. Dodson, E. Dodson, D.C. Hodgkin and D. Mercola
30. The crystal structure of insulin (*Sym. Pap-4th Int. Biophys. Congr.*, 1973, pp. 150–168) 363
G.A. Bentley, T.L. Blundell, E.J. Dodson, G.G. Dodson, J.F. Cutfield, S.M. Cutfield, D.C. Hodgkin, D. Mercola and M. Vijayan
31. The Bakerian Lecture, 1972. Insulin, its chemistry and biochemistry (*Proc. R. Soc.*, 1974., A338, 251–275) 374
Dorothy Crowfoot Hodgkin
32. Varieties of insulin. The Sir Henry Dale lecture for 1974 (*J. Endocrinol.*, 1974, 63, 3–14) 399
Dorothy Crowfoot Hodgkin
33. Chinese work on insulin (*Nature*, 1975, 255, 103) 415
Dorothy Crowfoot Hodgkin
34. The high resolution structure of insulin: A comparison of results obtained from least-squares phase refinement and difference fourier refinement (*Acta Crystallogr.*, 1975, A31, s21) 416
J.F. Cutfield, E.J. Dodson, G.G. Dodson, D.C. Hodgkin, N.W. Isaacs, K. Sakabe and N. Sakabe
35. Some insulin structures — A comparative study (*Acta Crystallogr.*, 1975, A31, s24) 417
G.A. Bentley, J.C. Cutfield, S.M. Cutfield, J. Dargay, E.J. Dodson, G.G. Dodson, D.C. Hodgkin, D.M. Mercola and M. Sabesan
36. Structure of insulin in 4-zinc insulin (*Nature*, 1976, 261, 166–168) 418
Graham Bentley, Eleanor Dodson, Guy Dodson, Dorothy Hodgkin and Dan Mercola
37. The structure of insulin (*Proc. 5th Int. Wolltextil - Forschungskonf.* 1975, 1976., pp. 1–16) 421
Dorothy Hodgkin

38.	X-rays and the structure of insulin (<i>J. Natl. Sci. Counc. Sri Lanka</i> , 1976, 4(2), 87-98) <i>Dorothy C. Hodgkin</i>	433
39.	The molecular basis of insulin action: The structure of insulin (<i>Int. Congr. Ser. Excerpta Med.</i> , 1977, 413, 155-162) <i>Dorothy Hodgkin</i>	444
40.	Structural relationships in the two-zinc insulin hexamer (<i>Can. J. Biochem.</i> , 1979, 57, 469-479). <i>E.J. Dodson, G.G. Dodson, D.C. Hodgkin and C.D. Reynolds</i>	453
41.	The conformations observed in the N terminal A chain residues of insulin (<i>in Frontiers of Bioorganic Chemistry and Molecular Biology</i> , 1980, pp. 145-150) <i>E. Dodson, G.G. Dodson and D. Crowfoot Hodgkin</i>	464
42.	Evidence concerning insulin activity from the structure of a cross-linked derivative (<i>Hoppe-Seylers Zeitschrift fur Physiologische Chemie</i> , 1981, 362, 755-761) <i>John Cutfield, Sue Cutfield, Eleanor Dodson, Guy Dodson, Dorothy Hodgkin and Colin Reynolds</i>	471
43.	Insulin-structure and biological activity (<i>Vestnik Akademii Nauk sssr</i> , 1983, pp. 53-60) <i>D. Hodgkin</i>	478
44.	600th Meeting. Structure and function of proteins and nucleic acids. Insulin (<i>Biochem. Soc. Trans.</i> , 1983, 11, 411-417) <i>Dorothy Crowfoot Hodgkin, Eleanor Dodson, Guy Dodson and Colin Reynolds</i>	486
45.	Transmission of conformational change in insulin (<i>Nature</i> , 1983, 302, 500-505) <i>Cyrus Chothia, Arthur M. Lesk, Guy G. Dodson and Dorothy C. Hodgkin</i>	496
46.	Insulin 1983 (<i>Chemiker-zeitung</i> , 1984, 108, 107) <i>Dorothy Hodgkin</i>	502
47.	The structure of 2Zn pig insulin crystals at 1.5 Å resolution (<i>Philos. Trans. R. Soc. London</i> , 1988, B319, 369-456) <i>Edward N. Baker, Thomas L Blundell, John F Cutfield, Susan M. Cutfield, Eleanor J. Dodson, Guy G. Dodson, Dorothy M. Crowfoot Hodgkin, Roderick E. Hubbard, Neil W. Isaacs, Colin D. Reynolds, Kiwako Sakabe, Noriohshi Sakabe and Numminate M. Vijayan</i>	503
48.	The X-ray analysis of complicated molecules. Nobel Lecture (<i>Les. Prix Nobel</i> , 1965, pp. 157-178) <i>Dorothy Crowfoot Hodgkin</i>	595
	Index	617



ISBN 81-7296-020-4

INTERLINE
P U B L I S H I N G
P R I V A T E L I M I T E D

