Number 19 THE PROTEIN DATA BANK January 1982
NEWSLETTER

We are pleased to announce that Dr. Wayne Hendrickson of the Naval Research Laboratory has accepted a three-year term on the Protein Data Bank Advisory Board. Also continuing on the board are Professors Harold Scheraga (Cornell) and Jane Richardson (Duke). At this time we would like to express our great appreciation to Professor Michael Rossmann of Purdue University for having served on the board for the past three years.

We are planning to include a new record type REVDAT (Revision Date) in our entries in the near future. REVDAT will contain the date of the latest revision for a given entry. We will classify our corrections in these records into two types: those which directly affect the atomic coordinates and those which do not do so. (The latter type are mostly of a typographical nature). The proposed record format will be:

Cols. 1-6	8-10	12	14-22	24-30	32	40-70
REVDAT	Modification Number	Serial Number	Date	IDENT Used	Modification Type	Comments

Further details will be provided shortly in our Atomic Coordinate Entry Format Description.

The Protein Data Bank has grown considerably over the years as shown in the following table.

Year	No. of entries distributed	No. of requests
1973	106	15
1974	99	16
1975	513	36
1976	1920	64
1977	5037	85
1978	4879	63
1979	7146	75
1980	9121	70
1981	18016	104

These distribution statistics represent activities only at Brookhaven. Copies of the files are maintained at the affiliated data centers listed below as well as being accessible through the PROPHET System.

Area	Address of Center	Name	
The Americas	Protein Data Bank Chemistry Department Brookhaven National Laboratory Upton, New York 11973 USA	E. Abola F. C. Bernstein T. F. Koetzle	516-282-4383 516-282-4382 516-282-4384
Europe and Worldwide	University Chemical Laboratory Lensfield Road Cambridge CB2 1EW, England	O. Kennard S. Bellard	0223-66499
Australia	CSIRO Central Information Service P. O. Box 89, East Melbourne Victoria 3002 Australia	C. Garrow	03-419-1333
Japan	Institute for Protein Research Osaka University 5311, Yamada-Kami, Suita Osaka, Japan	M. Kakudo	(06) 877-5111 ext. 3836

TABLE 1. PROTEIN DATA BANK, INFORMATION AVAILABLE ON MAGNETIC TAPE

12-JAN-82

CODE	ITEM	NO.TAPES 800	1600	AVAILABILITY US	UK	JA	AUS
DATAPRTP	ALL CURRENT PROGRAMS, BIBLIOGRAPHIC ENTRIES, COORDINATE ENTRIES (TABLES 3, 4, 7)	2	1	X	X	X	X
NONST1TP	STRUCTURE FACTOR HOLDINGS (PART 1 - TABLE 5)	2	1	X	X	X	
NONST2TP	STRUCTURE FACTOR HOLDINGS (PART 2 - TABLE 6)	1	1	X	X	X	
BENDERTP	PARAMETERS FOR BENT-WIRE MODELS	1	1	X			
BLDKITTP	MODEL BUILDER*S KIT	PLEASE INQUIRE AT US CENTER					
CONECTTP	CONNECTIVITY SPECIFICATIONS FOR ALL ATOMS	2	1	X			
DGPLOTTP	DIAGONAL PLOTS (LINE PRINTER)	1	1	X			
DIHDRLTP	COMPLETE TORSION ANGLES	2	1	X			
DSTNCETP	CONNECTIVITY SPECIFICATIONS WITH DISTANCES	2	1	X			
FISIPLTP	PHI/PSI PLOTS (LINE PRINTER)	1	1	X			
PHIPSITP	LISTS OF PHI/PSI/OMEGA VALUES	1	1	X			

* NEW OR REPLACEMENT ENTRY SINCE OCT-81 NEWSLETTER

TABLE 2. PROTEIN DATA BANK, INFORMATION AVAILABLE ON MICROFICHE

12-JAN-82

CODE	ITEM	AVAILABILITY US	UK	JA	AUS
DATAPRF1	ALL CURRENT PROGRAMS, BIBLIOGRAPHIC ENTRIES, COORDINATE ENTRIES (TABLES 3, 4, 7)	X	X	X	
NONST1F1	STRUCTURE FACTOR HOLDINGS (PART 1 - TABLE 5)	X	X	X	
NONST2F1	STRUCTURE FACTOR HOLDINGS (PART 2 - TABLE 6)	X	X	X	
CORR08F1	*LIST OF CORRECTIONS NO. 9 (JUL/81 - JAN/82)	X	X	X	X
BENDERF1	PARAMETERS FOR BENT-WIRE MODELS	X			
BLDKITF1	MODEL BUILDER*S KIT	PLEASE INQUIRE AT US CENTER			
CONECTF1	CONNECTIVITY SPECIFICATIONS FOR ALL ATOMS	X			
DGPLOTF1	DIAGONAL PLOTS (LINE PRINTER)	X			
DIHDRLF1	COMPLETE TORSION ANGLES	X			
DSTNCEF1	CONNECTIVITY SPECIFICATIONS WITH DISTANCES	X			
FISIPLF1	PHI/PSI PLOTS (LINE PRINTER)	X			
PHIPSIF1	LISTS OF PHI/PSI/OMEGA VALUES	X			

* NEW OR REPLACEMENT ENTRY SINCE OCT-81 NEWSLETTER

TABLE 4. PROTEIN DATA BANK, AVAILABLE PROGRAMS

12-JAN-82

NAME	PURPOSE	AUTHOR(S)	REV DATE/ SUPPORTED
BENDER	PARAMETERS FOR BENT-WIRE MODELS	G.WILLIAMS	1/79 YES
BLDKIT	MODEL BUILDER*S KIT	E.ABOLA	7/80 YES
CHIRAL	CHECK CHIRALITY	E.ABOLA	3/80 YES
CONECT	GENERATE FULL CONNECTIVITY	F.BERNSTEIN	12/81 YES
CONTCT	INTERMOLECULAR CONTACTS	L.ANDREWS	10/79 NO
DGPLOT	DIAGONAL PLOTS ON PRINTER	E.SWANSON,F.BERNSTEIN	3/79 YES
DIHDRL	COMPLETE TORSION ANGLES	E.ABOLA	3/80 YES
DSTNCE	CALC DISTANCES FROM CONECT RECORDS	F.BERNSTEIN	3/79 YES
FISIPL	PHI/PSI PLOTS ON PRINTER	F.BERNSTEIN	5/79 YES
NAMOD	BALL-AND-STICK MODEL DISPLAY	Y.BEPPU	11/78 NO
PHIPSI	MAIN-CHAIN TORSION ANGLES	ANDREWS,WILLIAMS,BERNSTEIN	2/79 YES
STEREO	EXTRACT X,Y,Z FROM STEREO DIAGRAMS	M.ROSSMANN	6/79 NO
TAPDIR	PRINT DIRECTORY OF TAPE CONTENTS	H.BERNSTEIN,F.BERNSTEIN	12/79 YES
TORSRU	COMPLETE TORSION ANGLES	G.REEKE	10/79 NO
TOTALS	VALIDATION OF MASTER RECORD	L.ANDREWS,F.BERNSTEIN	5/78 YES

* NEW OR REPLACEMENT ENTRY SINCE OCT-81 NEWSLETTER

SUPPORTED PROGRAMS ARE THOSE FOR WHICH STAFF OF THE PROTEIN DATA BANK WILL PROVIDE CORRECTIONS FOR DEMONSTRATED ERRORS.

TABLE 5. PROTEIN DATA BANK, STRUCTURE FACTOR HOLDINGS (PART 1, SEE ALSO TABLE 6)

12-JAN-82

IDENT CODE	MOLECULE	DEPOSITOR	DATE/ CODE
R1ACTSF	ACTINIDIN	E.BAKER	7/77 SF
CHYMOF	ALPHA-CHYMOTRYPSIN (TOSYL)	D.BLOW	4/73 SF
RCARP04	CALCIUM-BINDING PARVALBUMIN	R.KRETSINGER	2/74 SF
RCARP05	CALCIUM-BINDING PARVALBUMIN	R.KRETSINGER	2/74 SF
R2B5CSF	CYTOCHROME B5	F.S.MATHEWS	12/77 SF
R3CYTSF	CYTOCHROME C (ALBACORE, OXIDIZED)	T.TAKANO,R.DICKERSON	7/80 SF
R4CYTSF	CYTOCHROME C (ALBACORE, REDUCED)	T.TAKANO,R.DICKERSON	7/80 SF
RCYC5501	CYTOCHROME C550	R.TIMKOVICH	4/76 SF
R1ZNASF	DNA(Z*,CGCG,HIGH-SALT,SYNTHETIC)	H.DREW,R.DICKERSON	1/81 SF
R1BNASF	DNA(B,CGCGAATTCGCG,SYNTHETIC,290 DEG K)	H.DREW,R.DICKERSON	1/81 SF
RGPD04	GLYCERALDEHYDE-3-P-DEHYDROGENASE(LOBSTR)	M.ROSSMANN	8/75 SF
R2GPDSF	APO-GLYCERALDEHYDE-3-P-DEHYDROGENASE	M.ROSSMANN	12/79 SF
R1HMMSF	HEMERYTHRIN (MET, HYDROXO)	R.STENKAMP	6/81 SF
R2MHBSF	HEMOGLOBIN (HORSE, AQUO MET AND CO)	LADNER,HEIDNER,PERUTZ	6/80 SF
R1FDHSF	HEMOGLOBIN (HUMAN, FETAL, DEOXY)	J.FRIER	6/80 SF
RHUMDEH02	HEMOGLOBIN (HUMAN,DEOXY)	M.PERUTZ,G.FERMI	5/75 SF
LAMPRY1	HEMOGLOBIN (LAMPREY)	HENDRICKSON,LOVE,KARLE	5/73 SF
RLDH06	LACTATE DEHYDROGENASE	M.ROSSMANN	8/75 SF
RLDH07	LACTATE DEHYDROGENASE/NAD/PYRUVATE	M.ROSSMANN	8/75 SF
R5LDHSF	LACTATE DEHYDROGENASE/S-LAC/NAD (PIG)	U.GRAU,M.ROSSMANN	1/81 SF
R1LZHSF	LYSOZYME (HEN EGG-WHITE, MONOCLINIC)	C.BLAKE,D.RICE	6/81 SF
R2LZHSF	LYSOZYME (HEN EGG-WHITE, ORTHORHOMBIC)	C.BLAKE,D.RICE	6/81 SF
RMETMYSF1	MYOGLOBIN (SPERM WHALE, MET)	T.TAKANO	6/76 SF
RDEMYSF1	MYOGLOBIN (SPERM WHALE, DEOXY)	T.TAKANO	6/76 SF
R3RSASF	RIBONUCLEASE A	A.WLODAWER	5/81 SF
RRUBY02	RUBREDOXIN	L.JENSEN	3/74 SF
R4TNASF	TRANSFER RNA (YEAST, PHE)	A.JACK,J.LADNER,A.KLUG	6/80 SF

CODES

SF STRUCTURE FACTORS

TABLE 6. PROTEIN DATA BANK, STRUCTURE FACTOR HOLDINGS (PART 2, SEE ALSO TABLE 5)

12-JAN-82

IDENT CODE	MOLECULE	DEPOSITOR	DATE/ CODE
R351CSF	CYTOCHROME C551 (OXIDIZED)	T.TAKANO,R.DICKERSON	9/81 SF
R451CSF	CYTOCHROME C551 (REDUCED)	T.TAKANO,R.DICKERSON	9/81 SF
R2BNASF	*DNA(B,CGCGAATTCGCG,SYNTHETIC,16 DEG K)	H.DREW,R.DICKERSON	11/81 SF
R1MLTSF	MELITTIN	TERWILLIGER,EISENBERG	8/81 SF
R2BP2SF	PROPHOSPHOLIPASE A2 (BOVINE)	DIJKSTRA,HOL,DRENTH	9/81 SF
R2PTNSF	*TRYPSIN(ORTHOROMBIC,2.4M (NH4)2SO4)	J.WALTER,R.HUBER	10/81 SF
R3PTNSF	*TRYPSIN(TRIGONAL,2.4M (NH4)2SO4)	J.WALTER,R.HUBER	10/81 SF
R2TGASF	*TRYPSINOGEN(2.4M MGSO4)	J.WALTER,R.HUBER	10/81 SF
R1TGCSF	*TRYPSINOGEN(.5 CH3OH,.5 HOH)	J.WALTER,R.HUBER	10/81 SF
R1TGTSF	*TRYPSINOGEN(173 DEG K,.7 CH3OH,.3 HOH)	J.WALTER,R.HUBER	10/81 SF
R2TGTSF	*TRYPSINOGEN(103 DEG K,.7 CH3OH,.3 HOH)	J.WALTER,R.HUBER	10/81 SF
R2TPISF	*TRYPSINOGEN/PTI/ILE-VAL (MERCURATED)	J.WALTER,R.HUBER	10/81 SF

* NEW OR REPLACEMENT ENTRY SINCE OCT-81 NEWSLETTER

CODES

SF STRUCTURE FACTORS

TABLE 3. PROTEIN DATA BANK, ATOMIC COORDINATE HOLDINGS

12-JAN-82

IDENT CODE	MOLECULE	DEPOSITOR(S)	DATE/ STATUS
2APE	ACID PROTEINASE(ENDOTHIA PARASITICA)	T.BLUNDELL	9/81 R
1APP	ACID PROTEINASE(PENICILLIUMJANTHINELLUM)	M.JAMES,I.HSU	12/79
1APR	ACID PROTEINASE(RHIZOPUS CHINENSIS)	D.DAVIES	8/79
2ACT	ACTINIDIN	E.BAKER	11/79 R
2ADK	ADENYLATE KINASE (PORCINE MUSCLE)	G.SCHULZ	3/77 R
1AGA	AGAROSE	S.ARNOTT	5/78
2WGA	AGGLUTININ (WHEAT GERM)	C.WRIGHT	5/80 R
1ADH	ALCOHOL DEHYDROGENASE (ADP-RIB)	C.-I.BRANDEN	8/76
2ADH	ALCOHOL DEHYDROGENASE (ORTHOPHEN)	C.-I.BRANDEN	8/76
4ADH	ALCOHOL DEHYDROGENASE (APO)	C.-I.BRANDEN	8/79
1ALP	ALPHA LYTIC PROTEASE	BRAYER,DELBAERE,JAMES	6/79
1ABP	L-ARABINOSE-BINDING PROTEIN	F.QUIOCHO,G.GILLILAND	5/80
1ATC	ASPARTATE CARBAMOYLTRANSFERASE	CRAWFORD,MONACO,LIPSCOMB	8/79 A
1AZU	AZURIN	E.ADMAN,L.SIEKER,L.JENSEN	8/80
2BCL	BACTERIOCHLOROPHYLL A-PROTEIN	B.MATTHEWS	1/79 RA
1ABX	ALPHA-BUNGAROTOXIN	D.AGARD,S.SPENCER,R.STROUD	4/80 A
1CPV	CALCIUM-BINDING PARVALBUMIN SET 6A	R.KRETSINGER	8/74
2CPV	CALCIUM-BINDING PARVALBUMIN SET 6H	R.KRETSINGER	8/74
3CPV	CALCIUM-BINDING PARVALBUMIN SET 61	R.KRETSINGER	8/74
1CAP	CAPSULAR POLYSACCHARIDE (E. COLI M41)	S.ARNOTT	5/78
1CAB	CARBONIC ANHYDRASE B (HUMAN)	K.KANNAN	6/76
1CAC	CARBONIC ANHYDRASE C (HUMAN)	K.KANNAN	5/76
1CPA	CARBOXYPEPTIDASE A (BOVINE)	W.LIPSCOMB	2/73
1CPB	CARBOXYPEPTIDASE B (BOVINE)	M.SCHMID,J.HERRIOTT	9/76 A
1CAR	CARRAGEENAN	S.ARNOTT	5/78
1C4S	CHONDROITIN-4-SULFATE	S.ARNOTT	5/78
2C4S	CHONDROITIN-4-SULFATE (CA SALT)	S.ARNOTT	5/78
2CHA	ALPHA-CHYMOTRYPSIN (TOSYL)	D.BLOW	1/75 R
3CHA	ALPHA-CHYMOTRYPSIN	A.TULINSKY	8/76
2GCH	GAMMA-CHYMOTRYPSIN	COHEN,DAVIES,SILVERTON	5/80 R
1CAT	CATALASE (BEEF LIVER)	M.ROSSMANN	6/81 A
1CHG	CHYMOTRYPSINOGEN	J.KRAUT,J.BIRKTOFT	3/75
2CNA	CONCANAVALIN A	G.REEKE,J.BECKER,G.EDELMAN	4/75
3CNA	CONCANAVALIN A	K.HARDMAN	9/76 R
1CN1	*CONCANAVALIN A (DEMETALLIZED)	M.SHOHAM	12/81 N
1CRN	CRAMBIN	W.HENDRICKSON,M.TEETER	5/81
2B5C	CYTOCHROME B5 (OXIDIZED)	F.S.MATHEWS	12/77 R
156B	CYTOCHROME B562 (E.COLI,OXIDIZED)	BETHGE,CZERWINSKI,MATHEWS	8/79
3CYT	CYTOCHROME C (ALBACORE, OXIDIZED)	T.TAKANO,R.DICKERSON	7/80 R
4CYT	CYTOCHROME C (ALBACORE, REDUCED)	T.TAKANO,R.DICKERSON	7/80 R
1CYC	CYTOCHROME C (BONITO, HEART)	M.KAKUDO	8/76
1CCY	CYTOCHROME C.PRIME.	P.WEBER,R.SALEMME	8/81
1C2C	CYTOCHROME C2	J.KRAUT	3/73
155C	CYTOCHROME C550	R.TIMKOVICH	8/76
351C	CYTOCHROME C551 (OXIDIZED)	MATSUURA,TAKANO,DICKERSON	7/81 R
451C	CYTOCHROME C551 (REDUCED)	MATSUURA,TAKANO,DICKERSON	7/81
1DFR	DIHYDROFOLATE REDUCTASE (L.CASEI)	J.BOLIN,D.MATTHEWS,J.KRAUT	3/80
2DFR	DIHYDROFOLATE REDUCTASE (E. COLI)	J.BOLIN,D.MATTHEWS,J.KRAUT	3/80
1BNA	DNA(B,CGCGAATTCGCG,SYNTHETIC,290 DEG K)	H.DREW,R.DICKERSON	1/81
2BNA	*DNA(B,CGCGAATTCGCG,SYNTHETIC,16 DEG K)	H.DREW,R.DICKERSON	11/81
1ZNA	DNA(Z+,CGCG,HIGH-SALT,SYNTHETIC)	H.DREW,R.DICKERSON	1/81
2ZNA	DNA(Z-I,CGCGCG,SYNTHETIC,MODEL)	A.RICH	2/81
3ZNA	DNA(Z-II,CGCGCG,SYNTHETIC,MODEL)	A.RICH	2/81
1EST	ELASTASE (PORCINE, TOSYL)	H.WATSON	5/76
1ECD	ERYTHROCRUORIN (REDUCED, DEOXY)	W.STEIGEMANN,E.WEBER	3/79
1ECO	ERYTHROCRUORIN (CARBONMONOXY)	W.STEIGEMANN,E.WEBER	3/79
1ECA	ERYTHROCRUORIN (AQUO, MET)	W.STEIGEMANN,E.WEBER	3/79
1ECN	ERYTHROCRUORIN (CYANO, MET)	W.STEIGEMANN,E.WEBER	3/79
1FDX	FERREDOXIN (PEPTOCOCCUS AEROGENES)	E.ADMAN,L.SIEKER,L.JENSEN	8/76
3FXC	*FERREDOXIN (SPIRULINA PLATENSIS	TSUKIHARA,KATSUBE,KAKUDO	12/81
2FD1	*FERREDOXIN (AZOTOBACTER VINELANDII)	STOUT,GHOSH,FUREY,ODONNELL	11/81 R
3FXN	FLAVODOXIN (CLOSTRIDIUM MP,OXIDIZED)	M.LUDWIG	12/77 R
4FXN	FLAVODOXIN (CLOSTRIDIUM MP,SEMIQUINONE)	M.LUDWIG	12/77
1GCN	GLUCAGON	T.BLUNDELL	10/77
1PGI	GLUCOSE-6-PHOSPHATE ISOMERASE	H.MUIRHEAD	7/77
2GRS	*GLUTATHIONE REDUCTASE (HUMAN)	G.SCHULZ	11/81 RN
1GPD	GLYCERALDEHYDE-3-P-DEHYDROGENASE(LOBSTR)	M.ROSSMANN	7/75
2GPD	APO-GLYCERALDEHYDE-3-P-DEHYDROGENASE	M.ROSSMANN	12/79
1HRB	HEMERYTHRIN B	W.HENDRICKSON	6/76 A
1HMM	HEMERYTHRIN (MET,HYDROXO)	R.STENKAMP	6/81 R
1HDS	HEMOGLOBIN (DEER, SICKLE CELL)	E.AMMA,R.GIRLING	10/79
2MHB	HEMOGLOBIN (HORSE, AQUO MET)	R.LADNER,HEIDNER,PERUTZ	2/77 R
2DHB	HEMOGLOBIN (HORSE, DEOXY)	M.PERUTZ,G.FERMI	11/73
1HHB	HEMOGLOBIN (HUMAN, DEOXY)	M.PERUTZ,G.FERMI	4/75
1HCO	HEMOGLOBIN(HUMAN,CARBONMONOXY)	J.BALDWIN	8/79
2HCO	HEMOGLOBIN(HUMAN,CARBONMONOXY,NRG REFND)	J.BALDWIN	8/79
1FDH	HEMOGLOBIN (HUMAN, FETAL, DEOXY)	J.FRIER	8/76
1LHB	HEMOGLOBIN (LAMPREY)	HENDRICKSON,LOVE,KARLE	3/73
1HKG	HEXOKINASE A - GLUCOSE COMPLEX (YEAST)	W.BENNETT JR.,T.STEITZ	12/80
2YHX	HEXOKINASE (YEAST) FORM BIII	STEITZ,ANDERSON,STENKAMP	3/78 R
1HIP	HIGH POTENTIAL IRON PROTEIN	J.KRAUT	4/75
1HYA	HYALURONIC ACID (NA SALT, 3-FOLD HELIX)	S.ARNOTT	11/77
2HYA	HYALURONIC ACID (NA SALT, 4-FOLD HELIX)	S.ARNOTT	5/78
3HYA	HYALURONIC ACID (NA SALT, 2-FOLD HELIX)	S.ARNOTT	5/78
4HYA	HYALURONIC ACID (CA SALT, 3-FOLD HELIX)	S.ARNOTT	5/78
3FAB	IMMUNOGLOBULIN FAB* NEW	R.POLJAK	9/81 R
1MCG	IMMUNOGLOBULIN B-J INTACT MCG	SCHIFFER,EDMUNDSON ET AL.	5/78 A
1REI	IMMUNOGLOBULIN B-J FRAGMENT(V-DIMER)	O.EPP,R.HUBER	3/76
1RHE	IMMUNOGLOBULIN B-J FRAGMENT(V-MNMER)	B.WANG,C.YOO,M.SAX	12/77 A
1FC1	IMMUNOGLOBULIN FC (HUMAN)	J.DEISENHOFER	5/81
1FC2	IMMUNOGLOBULIN FC-FRAGMENT B COMPLEX	J.DEISENHOFER	5/81
1INS	INSULIN(PORCINE,2-ZINC)	G.DODSON,D.HODGKIN	7/80
1KGA	KDPG ALDOLASE	A.TULINSKY	8/78 A
1KES	KERATAN SULFATE	S.ARNOTT	5/78
1LDX	LACTATE DEHYDROGENASE (MOUSE TESTES)	W.MUSICK,M.ROSSMANN	9/78
4LDH	LACTATE DEHYDROGENASE (PIG)	W.EVENTOFF,M.ROSSMANN	4/77 R
3LDH	LACTATE DEHYDROGENASE/NAD/PYRUVATE(PIG)	M.ROSSMANN	11/74
5LDH	LACTATE DEHYDROGENASE/S-LAC/NAD (PIG)	U.GRAU,M.ROSSMANN	10/80
1HBL	LEGHEMOGLOBIN	VAINSHTEIN,HARUTYUNYAN	11/78
1LZM	LYSOZYME (BACTERIOPHAGE T4)	B.MATTHEWS	3/77
1LYZ	LYSOZYME (HEN EGG-WHITE, SET W2)	R.DIAMOND,D.PHILLIPS	2/75
2LYZ	LYSOZYME (HEN EGG-WHITE, SET RS5D)	R.DIAMOND,D.PHILLIPS	2/75
3LYZ	LYSOZYME (HEN EGG-WHITE, SET RS6A)	R.DIAMOND,D.PHILLIPS	2/75
4LYZ	LYSOZYME (HEN EGG-WHITE, SET RS9A)	R.DIAMOND,D.PHILLIPS	2/75
5LYZ	LYSOZYME (HEN EGG-WHITE, SET RS12A)	R.DIAMOND,D.PHILLIPS	2/75
6LYZ	LYSOZYME (HEN EGG-WHITE, SET RS16)	R.DIAMOND,D.PHILLIPS	2/75
7LYZ	LYSOZYME (HEN EGG-WHITE, TRICLINIC)	A.YONATH	5/77
8LYZ	LYSOZYME (HEN EGG-WHITE, INACTIVATED)	S.OATLEY	9/77
9LYZ	LYSOZYME(HEN,NAM-NAG-NAM SUBSTRATE ONLY)	J.KELLY,M.JAMES	12/79
1LZH	LYSOZYME (HEN EGG-WHITE,MONOCLINIC)	ARTYMIUK,BLAKE,RICE,WILSON	6/81 A
2LZH	LYSOZYME (HEN EGG-WHITE,ORTHORHOMBIC)	ARTYMIUK,BLAKE,RICE,WILSON	6/81 A
1LZ2	LYSOZYME (TURKEY EGG-WHITE)	R.BOTT,R.SARMA	9/81 A
1MDH	MALATE DEHYDROGENASE	L.BANASZAK	6/76 A
1MLT	MELITTIN	TERWILLIGER,EISENBERG	8/81
1MLP	MUREIN LIPOPROTEIN (HYPOTHETICAL)	A.MCLACHLAN	8/78
1MBS	MYOGLOBIN (SEAL, MET)	H.SCOULOUDI	3/79
1MBN	MYOGLOBIN (SPERM WHALE, MET)	H.WATSON	4/73
2MBN	MYOGLOBIN (SPERM WHALE, MET)	T.TAKANO	9/76
3MBN	MYOGLOBIN (SPERM WHALE, DEOXY)	T.TAKANO	9/76
1MBD	*MYOGLOBIN (SPERM WHALE, DEOXY)	S.PHILLIPS	8/81
1MBO	MYOGLOBIN (SPERM WHALE, OXY)	S.PHILLIPS	8/81
1MHR	MYOHEMERYTHRIN	W.HENDRICKSON	6/76 A
1NXB	NEUROTOXIN B (LATICAUDA SEMIFASCIATA)	D.TSERNOGLOU,G.PETSKO	8/80
1PPT	AVIAN PANCREATIC POLYPEPTIDE	T.BLUNDELL	1/81
8PAP	PAPAIN (NATIVE)	J.DRENTH	11/76 R
1PAD	PAPAIN (ACE-ALA-ALA-PHE-ALA, CYS-25)	J.DRENTH	11/76 R
2PAD	PAPAIN (CYS DERIV OF CYS-25)	J.DRENTH	11/76 R
3PAD	PAPAIN (OXIDIZED CYS-25)	J.DRENTH	11/76 R
4PAD	PAPAIN (TOS-LYS, CYS-25)	J.DRENTH	11/76 R
5PAD	PAPAIN (BZOXY-GLY-PHE-GLY, CYS-25)	J.DRENTH	11/76 R
6PAD	PAPAIN (BZOXY-PHE-ALA, CYS-25)	J.DRENTH	11/76 R
1PEP	PEPSIN (PORCINE)	N.ANDREEVA ET AL.	7/78 A
1PFC	*PFC FRAGMENT OF AN IGG	M.AMZEL	10/81
1PGK	PHOSPHOGLYCERATE KINASE (YEAST)	H.WATSON	5/76 A
2PGK	PHOSPHOGLYCERATE KINASE (HORSE)	P.EVANS,C.BLAKE	9/76 B
2PGM	PHOSPHOGLYCERATE MUTASE	H.WATSON	8/81 RN
1BP2	PHOSPHOLIPASE A2 (BOVINE)	B.DIJKSTRA,J.DRENTH	4/81
2BP2	PROPHOSFHOLIPASE A2	B.DIJKSTRA,W.HOL,J.DRENTH	6/81
1PCY	PLASTOCYANIN	J.GUSS,H.FREEMAN	8/80
2PAB	PREALBUMIN (HUMAN, PLASMA)	S.OATLEY,C.BLAKE	9/77 R
1PYK	PYRUVATE KINASE (CAT)	H.MUIRHEAD	1/80 A
1RLX	RELAXIN(MODEL,CONFORMATION A,UNREFINED)	A.EVANS,A.NORTH	3/78
2RLX	RELAXIN(MODEL,CONFORMATION B,UNREFINED)	A.EVANS,A.NORTH	3/78
3RLX	RELAXIN(MODEL,CONFORMATION A,REFINED)	A.EVANS,A.NORTH	3/78
4RLX	RELAXIN(MODEL,CONFORMATION B,REFINED)	A.EVANS,A.NORTH	3/78
1RHD	RHODANESE	W.HOL	12/77
3RSA	RIBONUCLEASE A	A.WLODAWER	5/81 R
1RN3	*RIBONUCLEASE-A	BORKAKOTI,MOSS,PALMER	10/81
1RNS	RIBONUCLEASE S	H.WYCKOFF,F.RICHARDS	4/73
2RXN	RUBREDOXIN(CLOSTRIDIUM PASTEURIANUM)	L.JENSEN	1/75
3RXN	RUBREDOXIN(DESULFOVIBRIO VULGARIS)	E.ADMAN,L.SIEKER,L.JENSEN	9/80
1SNS	STAPHYLOCOCCAL NUCLEASE	F.A.COTTON,E.HAZEN	4/73
1SGA	STREPTOMYCES GRISEUS PROTEINASE A	BRAYER,DELBAERE,JAMES	6/78
2SGB	STREPTOMYCES GRISEUS PROTEINASE B	DELBAERE,BRAYER,JAMES	6/79 R
2SSI	SUBTILISIN INHIBITOR (STREPTOMYCES)	Y.MITSUI ET AL.	4/80 R
1SBT	SUBTILISIN BPN*	J.KRAUT	8/72
2SBT	SUBTILISIN NOVO	J.DRENTH	9/76
2SOD	SUPEROXIDE DISMUTASE	J.RICHARDSON,D.RICHARDSON	3/80 R
1TLN	THERMOLYSIN (UNREFINED)	B.MATTHEWS	4/75
2TLN	THERMOLYSIN (REFINED)	B.MATTHEWS	4/75
1SRX	THIOREDOXIN (E. COLI, OXIDIZED)	B.-O.SODERBERG	5/76 A
4TNA	TRANSFER RNA (YEAST, PHE)	A.JACK,J.LADNER,A.KLUG	4/78 R
6TNA	TRANSFER RNA (YEAST, PHE)	S.-H.KIM ET AL.	11/78 R
8TNA	TRANSFER RNA (YEAST, PHE)	M.SUNDARALINGAM	2/79 R
1TIM	TRIOSE PHOSPHATE ISOMERASE	I.WILSON,D.PHILLIPS	9/76
1TNC	TROPONIN (CA-BINDING COMPONENT,MODEL)	R.KRETSINGER,C.BARRY	6/80 A
2PTN	*TRYPSIN(ORTHOROMBIC,2.4M (NH4)2SO4)	J.WALTER,R.HUBER	10/81 RP
3PTN	*TRYPSIN(TRIGONAL,2.4M (NH4)2SO4)	J.WALTER,R.HUBER	10/81 P
2PTB	TRYPSIN(BENZAMIDINE INHIBITED, PH7)	FEHLHAMMER,BODE,SCHWAGER	1/77 R
3PTP	TRYPSIN (DIP INHIBITED)	J.CHAMBERS,R.STROUD	12/77 R
3PTI	TRYPSIN INHIBITOR (BOVINE, PANCREAS)	R.HUBER,J.DEISENHOFER	11/76 R
1PTC	TRYPSIN/TRYPSIN INHIBITOR COMPLEX	R.HUBER,W.BODE	11/76
2TGA	*TRYPSINOGEN(2.4M MGSO4)	J.WALTER,R.HUBER	10/81 RP
1TGC	*TRYPSINOGEN(.5 CH3OH,.5 HOH)	J.WALTER,R.HUBER	10/81 P
1TGT	*TRYPSINOGEN(173 DEG K,.7 CH3OH,.3 HOH)	J.WALTER,R.HUBER	10/81 P
2TGT	*TRYPSINOGEN(103 DEG K,.7 CH3OH,.3 HOH)	J.WALTER,R.HUBER	10/81 P
1TGB	TRYPSINOGEN (WITH CA, FROM PEG)	BODE,FEHLHAMMER,HUBER	3/79
1TGN	TRYPSINOGEN	A.KOSSIAKOFF,R.STROUD	9/79
1TGP	TRYPSINOGEN/TRYPSIN INHIBITOR	W.BODE,P.SCHWAGER,R.HUBER	3/79
1TPI	TRYPSINOGEN/TRYPSIN INHIBITOR/ILE-VAL	W.BODE,P.SCHWAGER,R.HUBER	3/79
2TPI	*TRYPSINOGEN/PTI/ILE-VAL (MERCURATED)	J.WALTER,R.HUBER	10/81 P
1SBV	VIRUS COAT PROTEIN(SOUTHERN BEAN MOSAIC)	M.ROSSMANN	12/79 B

* NEW OR REPLACEMENT ENTRY SINCE OCT-81 NEWSLETTER

STATUS CODES

BLANK	STANDARD ENTRY AVAILABLE FOR DISTRIBUTION
A	ALPHA CARBON ATOMS ONLY
B	BACKBONE ONLY
N	NEW ENTRY AWAITING APPROVAL BY DEPOSITOR
P	IN PREPARATION
R	REPLACES AN OUT-OF-DATE PARAMETER SET

TABLE 7. PROTEIN DATA BANK, BIBLIOGRAPHIC ENTRIES

12-JAN-82

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0EAP  ACID PROTEINASE (ENDOTHIA PARASITICA)
0ADC  ADH-NADH-DIMETHYLSULFOXIDE COMPLEX
0AF1  APOFERRITIN (HORSE)
0MAA  MITOCHONDRIAL ASPARTATE AMINOTRANSFERASE
0ICB *CALCIUM-BINDING PROTEIN (MINOR A FORM,BOVINE)
0CP2  CARBOXYPEPTIDASE A-INHIBITOR COMPLEX
0CTS  CITRATE SYNTHASE (PIG)
0CTX  ALPHA COBRATOXIN
0CN2  CONCANAVALIN A (DEMETALLIZED)
0CRO  CRO REPRESSOR
0GCR *GAMMA-CRYSTALLIN II (CALF)
0CYP  CYTOCHROME C PEROXIDASE (SACCHAROMYCES CEREVISIAE)
0CY3  CYTOCHROME C3 (DESULFOVIBRIO DESULFURICANS NORWAY)
0CDV *CYTOCHROME C3 (DESULFOVIBRIO VULGARIS MIYAZAKI)
05C1  CYTOCHROME C555 (CHLOROBIUM THIOSULFATOPHILUM)
0C3A  DES-ARG77-C3A ANAPHYLATOXIN
0ESZ  ELASTASE COMPLEX (PIG)
0ETU  ELONGATION FACTOR TU COMPLEX (E. COLI)
0EBX  ERABUTOXIN B
0FX1  FLAVODOXIN (DESULFOVIBRIO VULGARIS)
0FX2  FLAVODOXIN (REDUCED, CLOSTRIDIUM MP)
0GAP  CATABOLITE GENE ACTIVATOR PROTEIN
0GP1  GLUTATHIONE PEROXIDASE (BOVINE)
0GD1  D-GLYCERALDEHYDE 3-PHOSPHATE DEHYDROGENASE (BACILLUS STEAROTHERMOPHILUS)
0HMG  HAEMAGGLUTININ
0HBG  HEMOGLOBIN (GLYCERA DIBRANCHIATA)
0PHH  P-HYDROXYBENZOATE HYDROXYLASE (PSEUDOMONAS FLUORESCENS)
0AUI  IMMUNOGLOBULIN, BENCE-JONES FRAGMENT (KAPPA) AU
0ROY  IMMUNOGLOBULIN, BENCE-JONES FRAGMENT (V-MONOMER,KAPPA) ROY
0MCP  IMMUNOGLOBULIN FAB (KAPPA) MCP603
0FB4  IMMUNOGLOBULIN FAB (LAMBDA) KOL
0IG1  IMMUNOGLOBULIN G1 (KAPPA) DOB
0IG2  IMMUNOGLOBULIN G1 (LAMBDA) KOL
0IN1 *INSULIN (PORCINE)
0IN2  INSULIN (PORCINE)
0GF1  INSULIN-LIKE GROWTH FACTOR I (HUMAN)
0GF2  INSULIN-LIKE GROWTH FACTOR II (HUMAN)
0LZ1  LYSOZYME (HUMAN)
0LZ5  LYSOZYME (HEN EGG-WHITE, NEUTRON STUDY)
0LZ6 *LYSOZYME (STREPTOMYCES ERYTHRAEUS)
0CTF  L7/L12 (E. COLI, C-TERMINUS)
0MB5  MYOGLOBIN (SPERM WHALE, CARBON MONOXIDE, NEUTRON STUDY)
0MBM  MYOGLOBIN (SPERM WHALE, MET, TEMPERATURE STUDIES)
0MB3  MYOGLOBIN (SPERM WHALE, MET, NEUTRON STUDY)
0SN3  SCORPION NEUROTOXIN VARIANT-3
0OVO  OVOMUCOID FRAGMENT
0PFK  PHOSPHOFRUCTOKINASE (BACILLUS STEAROTHERMOPHILUS)
0BP1  PHOSPHOLIPASE A2 (PORCINE)
0PP2 *PHOSPHOLIPASE A2 (RATTLESNAKE)
0PPA  PHOSPHORYLASE A (RABBIT)
0PB1  PHOSPHORYLASE B (RABBIT)
0RX5  RELAXIN (PORCINE, MODEL)
0RSA  RIBONUCLEASE A (BOVINE)
0RS3 *RIBONUCLEASE A (BOVINE, NEUTRON STUDY)
3*MT  INITIATOR TRANSFER RNA (E. COLI, F/MET)
0TA1  TRANSFER RNA (YEAST, ASP, A FORM)
0TA2  TRANSFER RNA (YEAST, ASP, B FORM)
0TR1  TRANSFER RNA (YEAST, PHE)
0MTS *METHIONYL TRANSFER RNA SYNTHETASE
0TS1  TYROSYL TRANSFER RNA SYNTHETASE (BACILLUS STEAROTHERMOPHILUS)
0GN5  GENE 5 DNA-UNWINDING PROTEIN (E. COLI)
0UTG  UTEROGLOBIN (RABBIT)
0TMV  VIRUS PROTEIN DISK (TOBACCO MOSAIC)
0TBV  VIRUS (TOMATO BUSHY STUNT)
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* NEW OR REPLACEMENT ENTRY SINCE OCT-81 NEWSLETTER

TABLE 8. SUBSTANTIVE CORRECTIONS TO COORDINATE ENTRIES AND PROGRAMS

12-JAN-82

THE CORRECTIONS IN THIS TABLE ARE GIVEN IN THE FORM OF 'UPDATE' MODIFICATIONS AND CONSIST OF 'UPDATE' DIRECTIVES PLUS NEW DATA RECORDS THAT ARE TO BE INSERTED OR THAT REPLACE ERRONEOUS RECORDS IN CERTAIN DATA BANK ENTRIES. 'UPDATE' IS THE CDC LIBRARY-FILE MANAGEMENT SYSTEM UNDER WHICH THE MASTER PROTEIN DATA BANK FILE IS MAINTAINED. FOR A DESCRIPTION OF 'UPDATE' USERS ARE REFERRED TO THE 'UPDATE REFERENCE MANUAL' PUBLICATION NUMBER 60342500, CONTROL DATA CORPORATION, ARDEN HILLS, MN, 1974. BRIEFLY, EACH DATA ENTRY IS GIVEN AN IDENTIFICATION CODE WHICH ALSO SERVES AS THE UPDATE 'DECK' NAME. EACH RECORD IN THE FILE IS IDENTIFIED WITH TWO TAGS. THE FIRST TAG IS SIMPLY THE 'DECK' NAME (OR AN 'IDENT' NAME -SEE BELOW) AND THE SECOND IS A SEQUENCE NUMBER WITHIN THE 'DECK' (OR 'IDENT'). THESE TAGS ARE INCLUDED IN CHARACTERS 73-80 OF THE RECORDS IN EACH DATA ENTRY AS DISTRIBUTED.

CORRECTIONS MAY BE MADE USING 'UPDATE' DIRECTIVES TO 'INSERT' NEW RECORDS OR 'DELETE' OLD ONES. EACH CORRECTION SET BEGINS WITH A '*IDENT' DIRECTIVE. THIS IDENTIFIES THE CORRECTION SET, E.G. AS 'IMBNA' FOR THE (CHRONOLOGICALLY) FIRST CORRECTION TO DECK 'IMBN' FOR SPERM-WHALE MYOGLOBIN, 'IMBNB' FOR THE SECOND CORRECTION, ETC. '*DELETE' DIRECTIVES SPECIFY A RECORD OR INCLUSIVE RUN OF RECORDS TO BE DELETED, IF DATA RECORDS OCCUR IMMEDIATELY FOLLOWING '*DELETE', THESE ARE TO BE INSERTED IN PLACE OF THE RECORDS DELETED. '*INSERT' DIRECTIVES ARE USED TO SPECIFY A PARTICULAR RECORD AFTER WHICH INFORMATION IS TO BE INSERTED. THE RECORDS TO BE INSERTED FOLLOW IMMEDIATELY AFTER '*INSERT' IN THE CORRECTION SET. WITHIN EACH CORRECTION NEW RECORDS PLACED IN THE FILE ARE GIVEN THE 'IDENT' NAME AND NUMBERED SEQUENTIALLY.

```
*IDENT,1SRXI
*INSERT,1SRXH.5
REMARK  16
REMARK  16 CORRECTION. CONVERT ATOMIC COORDINATES TO ANGSTROM UNITS BY
REMARK  16  DIVIDING ALL X, Y, Z BY 2.0.  MODIFY REMARK 11 TO REFLECT
REMARK  16  THIS CHANGE.  INSERT SSBOND RECORD.  14-SEP-81.
*INSERT,1SRXE.1
REMARK  11 (THIS REMARK IS NO LONGER APPLICABLE - SEE REMARK 16).
*INSERT,1SRX.52
SSBOND   1 CYS     32    CYS     35
*DELETE,1SRX.58,165
ATOM      2  CA  SER     1      15.200    .850  39.750  1.00  0.00
ATOM      8  CA  ASP     2      15.650   4.400  39.000  1.00  0.00
ATOM     16  CA  LYS     3      18.450   6.700  38.250  1.00  0.00
ATOM     25  CA  ILE     4      17.850   9.350  35.850  1.00  0.00
  .
  .
ATOM    802  CA  ALA   105      18.800  -5.500  17.800  1.00  0.00
ATOM    807  CA  ASN   106      21.400  -3.250  19.250  1.00  0.00
ATOM    815  CA  LEU   107      21.650  -4.300  23.100  1.00  0.00
ATOM    823  CA  ALA   108      21.700  -7.800  24.700  1.00  0.00
TER     829      ALA   108       0.000   0.000   0.000
*DELETE,1SRXH.6
MASTER       74    0    0    4    5    5    1    3  108    2    0    9

*IDENT,1HCOB
*INSERT,1HCOA.5
REMARK   7
REMARK   7 CORRECTION. CHANGE SIGN OF (3,3) ELEMENT OF SCALE
REMARK   7  TRANSFORMATION.  13-OCT-81.
*DELETE,1HCO.100
SCALE3      .004389  0.000000  -.002753        0.00000
*DELETE,1HCOA.6
MASTER       46    0    2   16    0    0    0    6 2282    2   94   23

*IDENT,2HCOB
*INSERT,2HCOA.5
REMARK   7
REMARK   7 CORRECTION. CHANGE SIGN OF (3,3) ELEMENT OF SCALE
REMARK   7  TRANSFORMATION.  13-OCT-81.
*DELETE,2HCO.101
SCALE3      .004389  0.000000  -.002753        0.00000
*DELETE,2HCOA.6
MASTER       47    0    2   16    0    0    0    6 2282    2   94   23

*IDENT,1CPAK
*INSERT,1CPAJ.18
REMARK  19
REMARK  19 CORRECTION. CORRECT SCALE TRANSFORMATION.  06-JAN-82.
*DELETE,1CPA.107,109
SCALE1      .019451  0.000000   .002588       0.000000
SCALE2     0.000000   .016697  0.000000       0.000000
SCALE3     0.000000  0.000000   .021378       0.000000
*DELETE,1CPAJ.19
MASTER      122    6    1    8    8   32    0    6 2453    2    6   25

*IDENT,1CYCH
*INSERT,1CYCG.5
REMARK  12
REMARK  12 CORRECTION. CORRECT (2,2) ELEMENT OF SCALE TRANSFORMATION.
REMARK  12  06-JAN-82.
*DELETE,1CYC.44
SCALE2     0.000000   .011823  0.000000       0.000000
*DELETE,1CYCG.6
MASTER       60    0    1    5    0    3    0    9  839    1   48    8

*IDENT,4HYAB
*INSERT,4HYAA.3
REMARK   6
REMARK   6 CORRECTION. CORRECT ORIGX AND SCALE TRANSFORMATIONS.
REMARK   6  REVISE COORDINATES ACCORDINGLY.  06-JAN-82.
*DELETE,4HYA.57,62
ORIGX1      .047778   .027585  0.000000       0.00000
ORIGX2     0.000000   .055170  0.000000       0.00000
ORIGX3     0.000000  0.000000   .035336       0.00000
SCALE1      .047778   .027585  0.000000       0.00000
SCALE2     0.000000   .055170  0.000000       0.00000
SCALE3     0.000000  0.000000   .035336       0.00000
*DELETE,4HYA.64,201
HETATM    1  C1  NAG     1       6.180  12.208  15.186  1.00  0.00
HETATM    2  C2  NAG     1       6.510  13.259  16.239  1.00  0.00
HETATM    3  C3  NAG     1       6.253  12.715  17.637  1.00  0.00
HETATM    4  C4  NAG     1       4.834  12.172  17.736  1.00  0.00
  .
  .
HETATM  135  O   HOH     9       8.272  10.038  -9.735  1.00  0.00
HETATM  136  O   HOH    10       8.455  13.179   8.691  1.00  0.00
HETATM  137  O   HOH    11       4.681  15.340   1.189  1.00  0.00
HETATM  138  O   HOH    12       6.694   7.314  -7.095  1.00  0.00
*DELETE,4HYAA.4
MASTER       39    0    3    0    0    0    0    6  138    0  126    1

*IDENT,1SGAE
*INSERT,1SGAD.3
REMARK  10
REMARK  10 CORRECTION. CORRECT (1,1) ELEMENT OF SCALE TRANSFORMATION.
REMARK  10  06-JAN-82.
*DELETE,1SGA.84
SCALE1      .018136  0.000000  0.000000       0.000000
*DELETE,1SGAD.4
MASTER       65    0    0    0    0    0    0    6 1265    1    2   14
```

REQUEST FORM

(Please include a self-addressed label)

1. Name _____ Date _____

   Address _____ Telephone _____

   _____

   _____

2. Documentation desired (no charge).

   ( ) Latest Newsletter
   ( ) Introduction to The Protein Data Bank (June 1981)
   ( ) Sources of Visual Aids for Macromolecular Structure (June 1981)
   ( ) Atomic Coordinate Entry Format Description for DATAPRTP and DATAPRFI (December 1981)
   ( ) Non-Standard Entries (Structure Factors) format description for NONST1TP and NONST1FI (September 1981)
   ( ) Non-Standard Entries (Structure Factors) format description for NONST2TP and NONST2FI (January 1982)
   ( ) Data Deposition form

3. Please send the following magnetic tape items (from Table 1). Each 1-tape item costs $122 (£68); each 2-tape item costs $147 (£82). Domestic postage is included.

Item	Number of Tapes	Cost

Total _____

4. Tape format desired (all tapes are unlabelled)

   ( ) 9 track, 1600 cpi, EBCDIC
   ( ) 9 track, 800 cpi, EBCDIC
   ( ) 9 track, 1600 cpi, ASCII
   ( ) 9 track, 800 cpi, ASCII
   ( ) 7 track, 800 cpi, BCD

   Only the first two formats are normally prepared at Cambridge; please inquire for availability of other formats.

   All tapes are distributed in blocked form with fixed record length and block size. Brookhaven normally uses a block size close to, but less than, 5120 characters. Please indicate here any difficulties this might cause.

5. Please send the following microfiche items (from Table 2). Each microfiche item costs $84 (£ 47 from Cambridge). Correction fiche are free.

Item	Cost

Total _____

6. Air mail postage from Brookhaven to destinations outside the U. S. and Canada or from Cambridge to destinations outside the United Kingdom. A postage surcharge of $15 (£ 8) is required per magnetic tape (not per item).

Number of tapes x $15.00 (£ 8) = _____

7. Total charges

Magnetic tape charges (3 above) _____

Microfiche charges (5 above) _____

Air mail postage charges (6 above). _____

Total _____

For Brookhaven only:

Brookhaven requires that either a check or actual purchase order be received before data are shipped. Inclusion of check with order will expedite processing.

Payment to the order of Brookhaven National Laboratory

by ( ) check
( ) purchase order number _____

is ( ) enclosed
( ) sent separately to the Protein Data Bank

Please return to

Ms. F. C. Bernstein
Chemistry Department
Brookhaven National Laboratory
Upton, New York 11973 USA

or

Dr. S. Bellard
University Chemical Laboratory
Lensfield Road
Cambridge CB2 1EW, England