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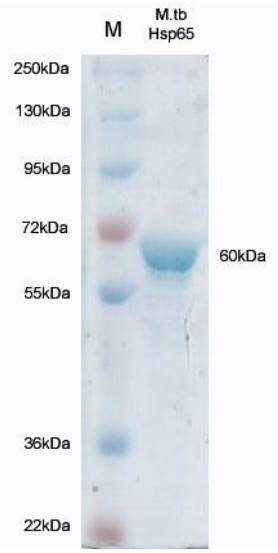

Supplementary Fig 1. 12 % SDS gel with marker and purified Mtb Hsp65

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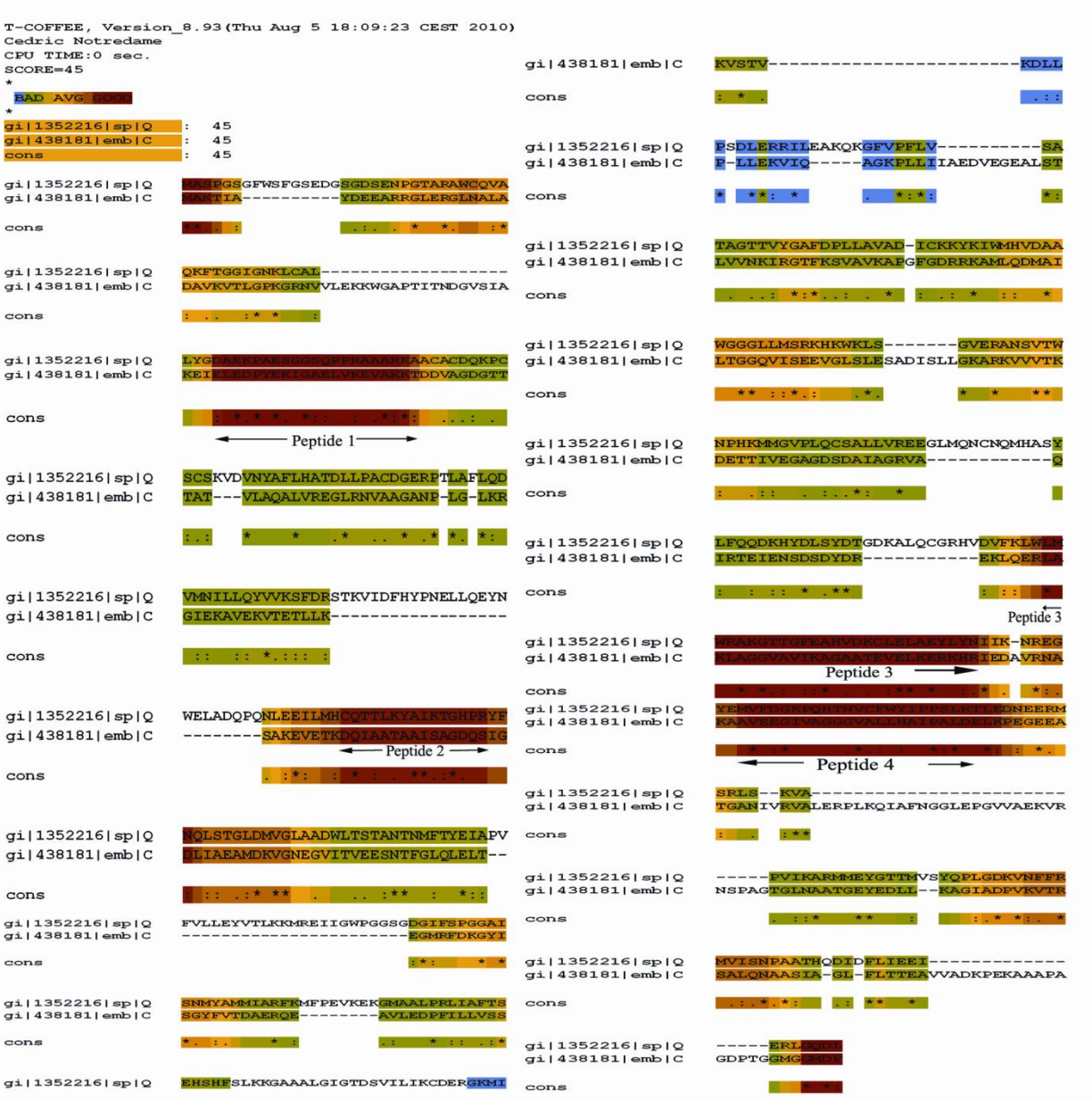

Supplementary Fig 2. T-Coffee analysis of GAD65 (Gi:1352216) and MAP Hsp65 (Gi: 438181)

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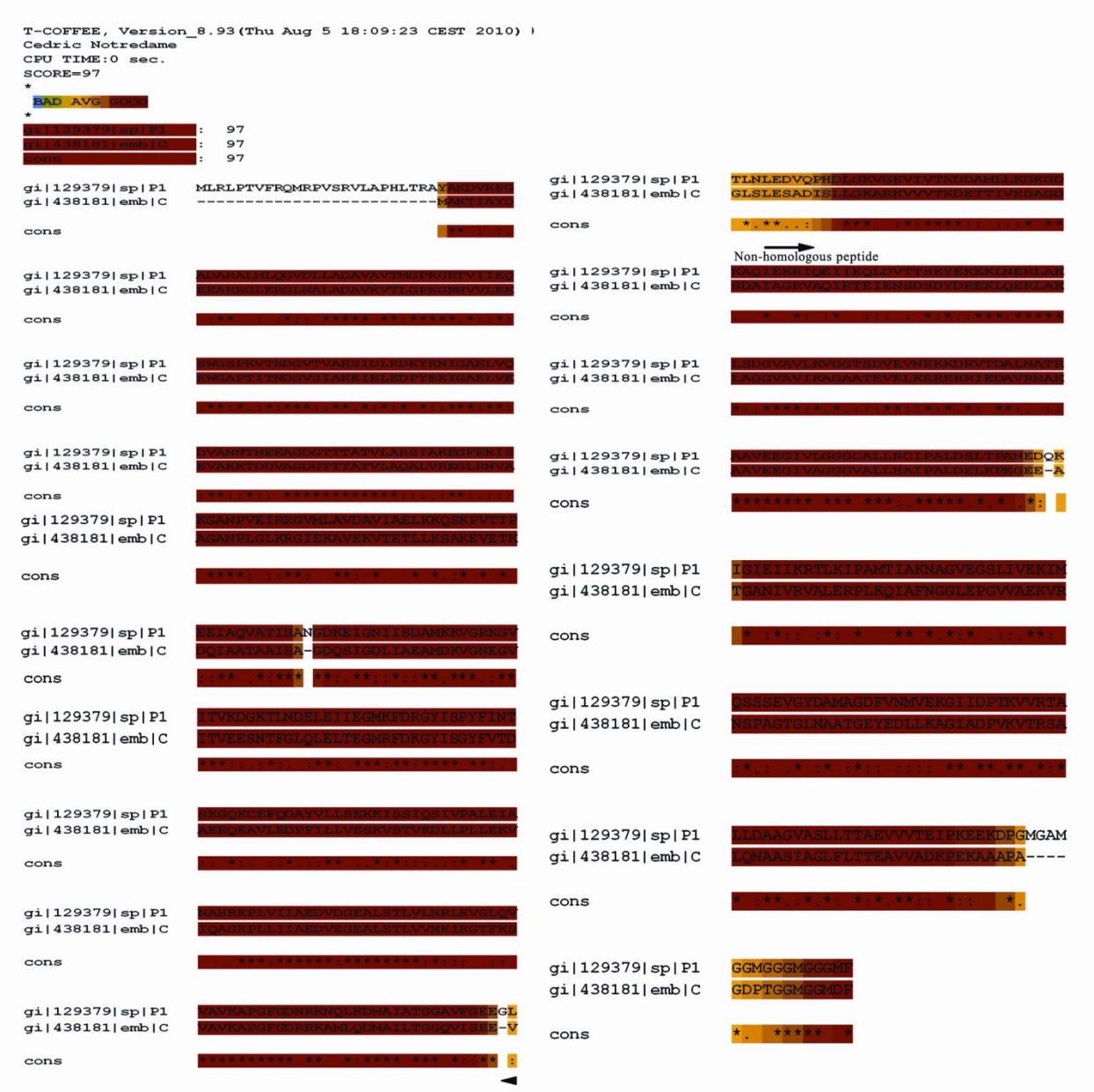

Supplementary Fig 3. T-Coffee analysis of Human Hsp60 (Gi: 129379) and MAP Hsp65 (Gi: 438181)

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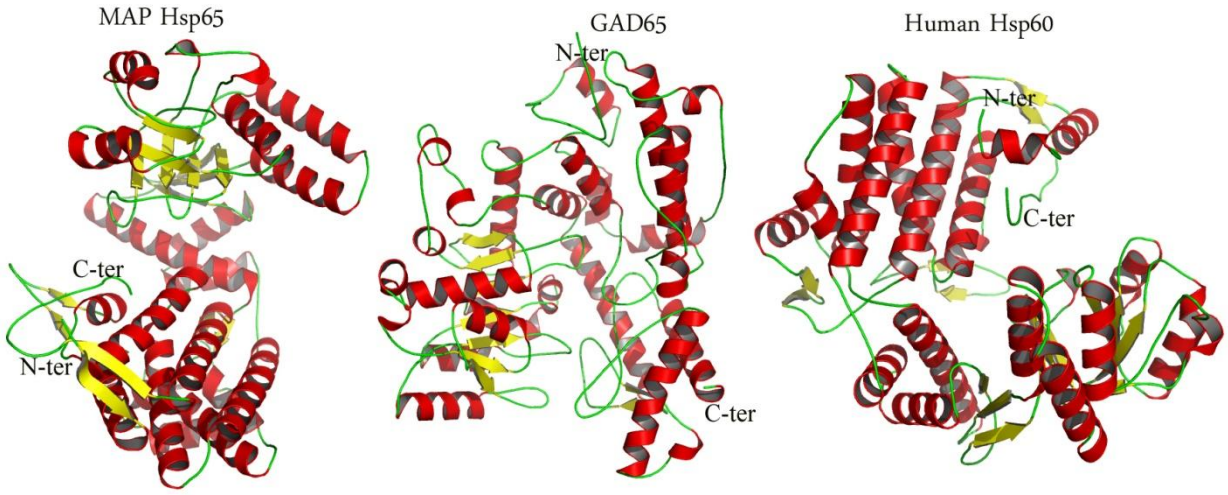

Supplementary Fig 4. Molecular structure of MAP Hsp65, GAD65, Human Hsp60. The secondary structural elements represented in sheet (Yellow in colour), loop (Green in colour) and helices (Red in colour).

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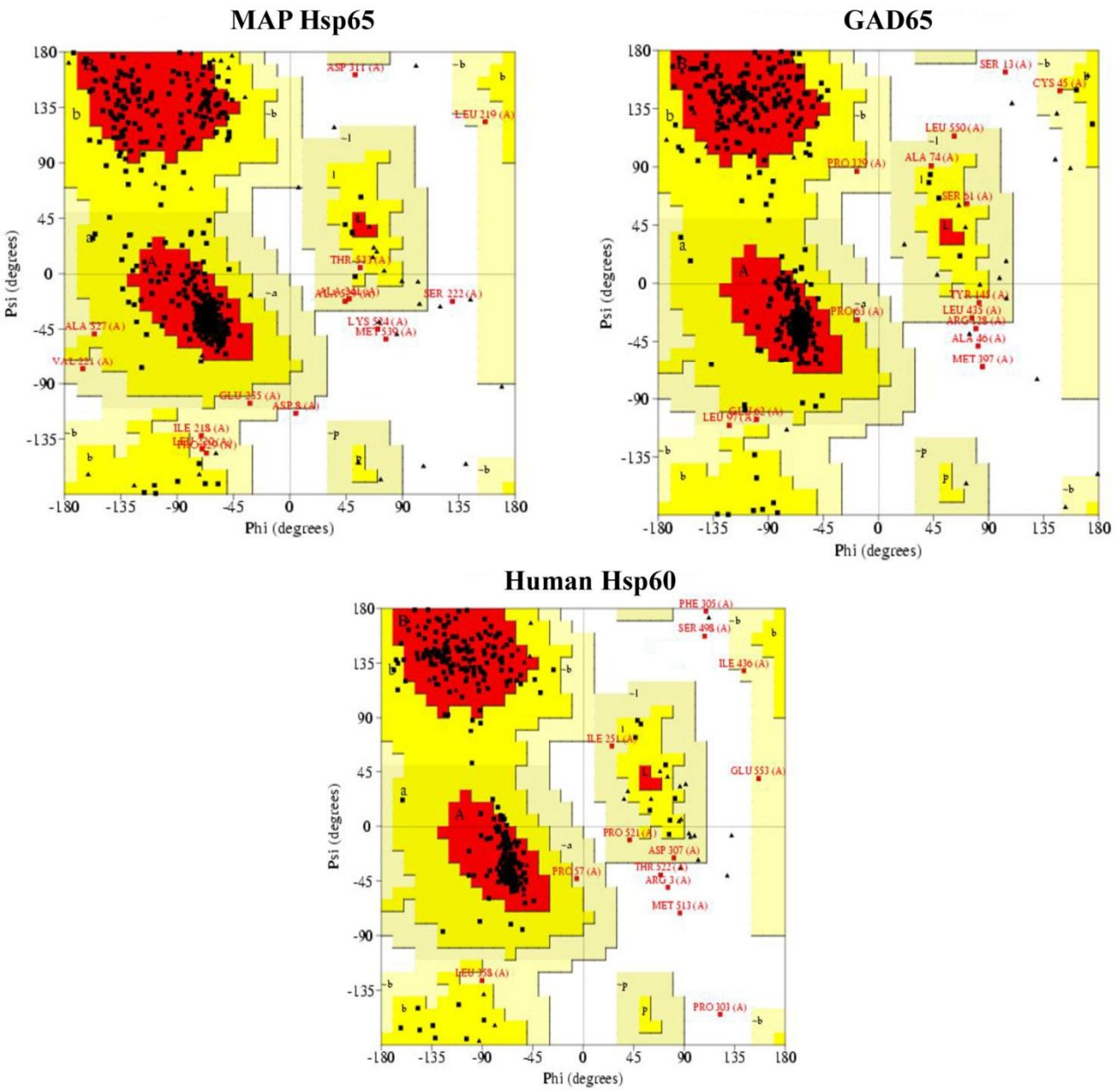

Supplementary Fig 5. Ramachandran plots for built models of MAP Hsp65, GAD65 and Human Hsp60

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Supplementary Table-1: Statistical Analysis of ELISA

Protein/Peptide	U value	p value	Significance difference between Median values	Samples
M.tb Hsp65	112.5	p=0.0025	Yes	Healthy and T1DM
M.tb Hsp65	67.5	p<0.0001	Yes	Healthy and T2DM
MAP peptide-1	53.0	p<0.0001	Yes	Healthy and T1DM
MAP peptide-1	54.50	p<0.0002	Yes	Healthy and T2DM
MAP peptide-2	67.50	p<0.0001	Yes	Healthy and T1DM
MAP peptide-2	81.50	p<0.0001	Yes	Healthy and T2DM
MAP peptide-3	40.50	p<0.0001	Yes	Healthy and T1DM
MAP peptide-3	57.0	p<0.0001	Yes	Healthy and T2DM
MAP peptide-4	7.00	p<0.0001	Yes	Healthy and T1DM
MAP peptide-4	10.50	p<0.0001	Yes	Healthy and T2DM
MAP peptide-5	230.5	p=0.79	No	Healthy and T1DM
MAP peptide-5	214.0	p=0.518	No	Healthy and T2DM

Supplementary Table-2: T- coffee analysis with other human auto-antigens for identifying the Non- conserved peptide

S.No	T-Coffee analysis	% identity	Non- conserved peptides
1.	MAP and Human Hsp60	97%	VGLSLESADI LTLNLEDVQP
2.	MAP and GAD65	45%	VGLSLESADI HKWKLS-----
3.	MAP and Insulin	62%	VGLSLESADI - - - - - - - - - -
4.	MAP and Insulinoma associated protein	52%	VGLSLESADI GVLGR--RV
5.	MAP and Znt-8	51%	VGLSLESADI MEGVPKSLN-

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Supplementary Table-3: NetsufP prediction results for solvent accessibility for MAP Hsp65, GAD65 and Human Hsp60 (10 peptides). (Z-fit score represents the reliability of the RSA prediction).

Protein	Peptide	Amino Acid	Relative Surface Accessibility (RSA)	Absolute Surface Accessibility (ASA)	Z-fit score for RSA prediction	Class assignment
MAP Hsp65	Conserved Peptide 1	Glu60	0.528	92.242	0.609	Exposed
		Leu61	0.146	26.714	0.377	Buried
		Glu62	0.628	109.677	1.233	Exposed
		Asp63	0.193	27.869	0.377	Buried
		Pro64	0.381	54.135	-0.106	Exposed
		Tyr65	0.187	39.962	-1.115	Buried
		Glu66	0.345	60.237	-0.270	Exposed
		Lys67	0.388	79.729	-0.718	Exposed
		Iso68	0.219	40.515	0.216	Buried
		Gly69	0.124	9.790	-0.880	Buried
		Ala70	0.027	2.964	-0.031	Buried
		Glu71	0.310	54.140	1.911	Exposed
		Leu72	0.063	11.554	0.956	Buried
		Val73	0.021	3.258	1.309	Buried
		Lys74	0.142	29.148	1.002	Buried
		Glu75	0.364	63.538	0.684	Exposed
		Val76	0.033	5.149	0.460	Buried
		Ala77	0.031	3.438	-0.654	Buried
		Lys78	0.470	96.658	1.688	Exposed
		Lys79	0.393	80.820	1.017	Exposed
	Conserved Peptide 2	Asp141	0.669	96.461	0.577	Exposed
		Gln142	0.321	57.295	2.143	Exposed
		Iso143	0.032	5.939	0.535	Buried
		Ala144	0.190	20.938	1.413	Buried
		Ala145	0.410	45.138	1.220	Exposed
		Thr146	0.062	8.627	0.939	Buried
		Ala147	0.033	3.626	-0.539	Buried
		Ala148	0.320	35.209	0.751	Exposed
		Iso149	0.250	46.250	0.494	Buried
		Ser150	0.079	9.235	-0.902	Buried
		Ala151	0.161	17.731	-1.578	Buried
		Gly152	0.450	35.384	-1.086	Exposed
		Asp153	0.316	45.550	-0.488	Exposed
		Gln154	0.620	110.803	0.506	Exposed
		Ser155	0.397	46.505	1.011	Exposed
	Conserved Peptide 3	Leu367	0.242	44.237	-0.548	Buried
		Ala368	0.168	18.547	-1.330	Buried
		Lys369	0.593	122.00	-0.490	Exposed
		Leu370	0.298	54.619	-1.148	Exposed
		Ala371	0.524	57.745	0.898	Exposed
		Gly372	0.460	36.186	-0.667	Buried
		Gly373	0.162	12.718	0.070	Buried
		Val374	0.033	5.026	0.438	Buried
		Ala375	0.020	2.193	0.977	Buried
		Val376	0.033	5.026	0.438	Buried
		Iso377	0.016	2.941	1.655	Buried
		Lys378	0.081	16.579	0.691	Buried
		Ala379	0.047	5.234	0.088	Buried
		Gly380	0.197	15.480	-0.370	Buried

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		Ala381	0.131	14.392	-1.456	Buried
		Ala382	0.229	25.236	-1.478	Buried
		Thr383	0.236	32.733	-0.277	Buried
		Glu384	0.543	94.862	0.676	Exposed
		Val385	0.378	58.083	0.875	Exposed
		Glu386	0.124	21.593	0.936	Buried
		Leu387	0.103	18.896	0.651	Buried
		Lys388	0.471	96.905	1.140	Exposed
		Glu389	0.220	38.521	0.628	Buried
		Arg390	0.080	18.251	0.789	Buried
		Lys391	0.282	57.946	0.982	Exposed
		His392	0.313	56.953	0.702	Exposed
		Arg393	0.044	10.099	0.864	Buried
		Iso394	0.022	3.977	0.959	Buried
	Conserved	Ala404	0.045	4.981	0.047	Buried
	Peptide 4	Val405	0.135	20.749	0.502	Buried
		Glu406	0.573	100.138	0.931	Exposed
		Glu407	0.646	112.909	0.592	Exposed
		Gly408	0.301	23.665	-0.088	Exposed
		Iso409	0.081	15.022	0.397	Buried
		Val410	0.040	6.163	0.408	Buried
		Ala411	0.100	10.976	-0.551	Buried
		Gly412	0.076	5.950	-2.329	Buried
		Gly413	0.057	4.470	-1.077	Buried
		Gly414	0.053	4.140	-0.915	Buried
		Val415	0.035	5.318	0.113	Buried
		Ala416	0.030	3.251	0.409	Buried
		Leu417	0.033	6.116	0.445	Buried
		Leu418	0.026	4.724	0.837	Buried
		His419	0.167	30.395	1.165	Buried
		Ala420	0.019	2.061	0.813	Buried
		Iso421	0.069	12.783	-0.201	Buried
		Pro422	0.387	54.859	1.308	Exposed
		Ala423	0.262	28.916	1.089	Exposed
		Leu424	0.042	7.635	-0.055	Buried
		Leu425	0.491	70.753	1.081	Exposed
	Non-	Val303	0.284	43.682	-0.965	Buried
	conserved	Gly304	0.578	45.520	-0.965	Exposed
	Peptide 5	Leu305	0.275	50.371	-0.543	Exposed
		Ser306	0.348	40.739	0.673	Exposed
		Leu307	0.288	50.113	-0.176	Exposed
		Glu308	0.627	109.589	0.588	Exposed
		Ser309	0.603	70.718	0.572	Exposed
		Ala310	0.124	13.676	-0.394	Buried
		Asp311	0.516	80.869	0.423	Exposed
		Iso312	0.209	38.628	-0.157	Buried
GAD65	Conserved	Asp51	0.425	61.214	-0.089	Exposed
	Peptide 1	Ala52	0.549	60.500	-1.091	Exposed
		Glu53	0.617	107.807	-0.153	Exposed
		Lys54	0.528	108.527	-0.153	Exposed
		Pro55	0.215	30.508	-1.233	Buried
		Ala56	0.475	52.312	-0.499	Exposed
		Glu57	0.497	86.808	-0.467	Exposed
		Ser58	0.416	48.802	-1.913	Exposed
		Gly59	0.619	48.715	-1.913	Exposed
		Gly60	0.571	44.969	-2.152	Exposed

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	Ser61	0.268	31.445	-1.117	Buried
	Gln62	0.555	99.105	-0.433	Exposed
	Pro63	0.392	55.582	-1.742	Exposed
	Pro64	0.449	63.713	-1.307	Exposed
	Arg65	0.404	92.493	-1.091	Exposed
	Ala66	0.511	56.268	-1.440	Exposed
	Ala67	0.339	37.358	-1.349	Exposed
	Ala68	0.555	61.194	-0.705	Exposed
	Arg69	0.527	120.775	-0.696	Exposed
	Lys70	0.432	88.821	-0.825	Exposed
Conserved	Cys163	0.017	2.401	1.540	Buried
Peptide 2	Gln164	0.365	65.153	1.729	Exposed
	Thr165	0.543	75.383	1.829	Exposed
	Thr166	0.085	11.831	0.753	Buried
	Leu167	0.045	8.313	0.652	Buried
	Lys168	0.412	84.831	1.195	Exposed
	Tyr169	0.370	79.112	-1.105	Exposed
	Ala170	0.086	9.499	-2.083	Buried
	Iso171	0.049	9.139	0.005	Buried
	Lys172	0.293	60.352	-0.169	Exposed
	Thr173	0.142	19.723	-0.874	Buried
	Gly174	0.201	15.811	-1.754	Buried
	His175	0.082	14.934	-0.733	Buried
	Pro176	0.050	7.038	-1.120	Buried
	Arg177	0.129	29.495	0.048	Buried
Conserved	Leu457	0.082	15.014	-0.658	Buried
Peptide 3	Met458	0.088	17.649	0.230	Buried
	Trp459	0.056	13.420	0.495	Buried
	Arg460	0.200	45.869	0.762	Buried
	Ala461	0.259	28.564	-0.252	Buried
	Lys462	0.165	33.961	1.307	Buried
	Gly463	0.094	7.366	-4.20	Buried
	Thr464	0.278	38.559	0.749	Exposed
	Thr465	0.566	78.546	0.881	Exposed
	Gly466	0.151	11.554	0.669	Buried
	Phe467	0.029	5.820	0.785	Buried
	Glu468	0.205	35.848	0.801	Buried
	Ala469	0.429	47.265	1.753	Exposed
	His470	0.099	18.026	1.588	Buried
	Val471	0.018	2.767	1.434	Buried
	Asp472	0.363	52.366	1.636	Exposed
	Lys473	0.403	82.979	1.259	Exposed
	Cys474	0.033	4.689	0.467	Buried
	Leu475	0.074	13.586	0.910	Buried
	Glu476	0.444	77.514	1.551	Exposed
	Leu477	0.084	15.307	1.101	Buried
	Ala478	0.013	1.444	1.496	Buried
	Glu479	0.298	52.043	1.618	Exposed
	Tyr480	0.275	58.682	2.095	Exposed
	Lue481	0.015	2.746	1.604	Buried
	Tyr482	0.103	21.947	0.885	Buried
	Asn483	0.489	71.531	1.811	Exposed
	Iso484	0.159	29.507	1.703	Buried
Conserved	Met493	0.062	12.346	0.396	Buried
Peptide 4	Val494	0.054	8.284	0.218	Buried
	Phe495	0.131	26.372	-0.008	Buried

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		Asp496	0.368	52.986	-0.694	Exposed
		Gly497	0.358	28.175	-1.089	Buried
		Lys498	0.508	104.496	-0.512	Exposed
		Pro499	0.188	26.748	-0.442	Buried
		Gln500	0.338	60.278	0.639	Exposed
		His501	0.037	6.676	-0.226	Buried
		Thr502	0.036	4.938	-0.745	Buried
		Asn503	0.021	3.118	0.897	Buried
		Val504	0.016	2.521	1.458	Buried
		Cys505	0.015	2.036	1.546	Buried
		Phe506	0.017	3.412	1.422	Buried
		Trp507	0.064	15.488	0.543	Buried
		Tyr508	0.052	11.155	0.669	Buried
		Iso509	0.220	40.756	1.074	Buried
		Pro510	0.127	18.007	-0.629	Buried
		Pro511	0.606	85.949	-0.571	Exposed
		Ser512	0.635	74.422	-1.305	Exposed
		Leu513	0.191	34.990	-1..406	Buried
		Arg514	0.557	127.530	-0.918	Exposed
	Conserved	Asp85	0.394	56.747	0.244	Exposed
	Peptide 1	Leu86	0.387	70.841	-1.014	Exposed
		Lys87	0.587	120.684	-0.528	Exposed
		Asp88	0.364	52.409	-0.712	Exposed
Human		Lys89	0.376	77.281	-0.054	Exposed
Hsp60		Tyr90	0.092	19.639	-0.396	Buried
		Lys91	0.207	42.600	-0.161	Buried
		Asn92	0.143	20.906	0.304	Buried
		Iso93	0.073	13.524	0.469	Buried
		Gly94	0.040	3.124	-0.101	Buried
		Ala95	0.033	3.604	-0.222	Buried
		Lys96	0.312	64.096	1.898	Exposed
		Leu97	0.052	9.558	1.231	Buried
		Val98	0.025	3.873	1.091	Buried
		Gln99	0.159	28.433	1.081	Buried
		Asp100	0.372	53.533	0.886	Exposed
		Val101	0.028	4.365	0.598	Buried
		Ala102	0.033	3.593	-0.713	Buried
		Asn103	0.468	68.544	1.731	Exposed
		Asn104	0.375	54.900	1.046	Exposed
	Conserved	Glu166	0.660	115.250	0.522	Exposed
	Peptide 2	Glu167	0.169	29.524	1.569	Buried
		Iso168	0.070	12.876	-0.052	Buried
		Ala169	0.312	34.382	1.284	Exposed
		Gln170	0.262	46.754	1.396	Exposed
		Val171	0.040	6.133	0.960	Buried
		Ala172	0.097	10.678	-0.337	Buried
		Thr173	0.271	37.574	1.112	Exposed
		Iso174	0.062	11.544	0.388	Buried
		Ser175	0.150	17.545	-0.940	Buried
		Ala176	0.293	32.245	-1.159	Buried
		Asn177	0.418	61.195	-0.921	Exposed
		Gly178	0.370	29.150	-1.637	Exposed
		Asp179	0.465	67.079	-0.123	Exposed
		Lys180	0.624	128.254	-0.056	Exposed
		Glu181	0.409	71.522	0.948	Exposed
	Conserved	Leu394	0.173	31.603	-0.434	Buried

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Peptide 3	Ala395	0.060	6.656	-0.893	Buried
	Lys396	0.441	90.673	-0.179	Exposed
	Leu397	0.276	50.609	-0.979	Buried
	Ser398	0.515	60.346	-1.127	Exposed
	Asp399	0.524	75.566	-0.881	Exposed
	Gly400	0.162	12.773	-0.100	Buried
	Val401	0.047	7.239	0.168	Buried
	Ala402	0.020	2.259	0.876	Buried
	Val403	0.040	6.133	0.373	Buried
	Leu404	0.014	2.563	1.750	Buried
	Lys405	0.068	13.988	0.633	Buried
	Val406	0.023	3.566	0.748	Buried
	Gly407	0.152	11.947	-0.254	Buried
	Gly408	0.070	5.548	-1.956	Buried
	Thr409	0.192	26.700	-1.289	Buried
	Ser410	0.155	18.213	-0.491	Buried
	Asp411	0.514	74.096	0.391	Exposed
	Val412	0.412	63.355	0.037	Exposed
	Glu413	0.155	27.148	0.697	Buried
	Val414	0.140	21.533	0.560	Buried
	Asn415	0.560	81.955	1.321	Exposed
	Glu416	0.290	50.715	0.512	Exposed
	Lys417	0.089	18.348	0.521	Buried
	Lys418	0.268	55.169	1.086	Exposed
	Asp419	0.378	54.470	0.768	Exposed
	Arg420	0.053	12.183	0.996	Buried
	Val421	0.021	3.182	1.071	Buried
Conserved Peptide 4	Ala431	0.038	4.133	-0.091	Buried
	Val432	0.129	19.889	0.349	Buried
	Glu433	0.579	101.151	0.483	Exposed
	Glu434	0.597	104.278	0.113	Exposed
	Gly435	0.276	21.690	-0.291	Buried
	Iso436	0.125	23.181	0.538	Buried
	Val437	0.030	4.534	-2.592	Buried
	Leu438	0.063	11.590	-0.658	Buried
	Gly439	0.058	4.557	0.317	Buried
	Gly440	0.051	4.029	-1.232	Buried
	Gly441	0.050	3.896	-1.320	Buried
	Cys442	0.031	4.366	0.370	Buried
	Ala443	0.026	2.854	0.688	Buried
	Leu444	0.031	5.713	0.715	Buried
	Leu445	0.031	5.768	0.592	Buried
	Arg446	0.142	32.632	1.209	Buried
	Cys447	0.018	2.569	0.987	Buried
	Iso448	0.062	11.562	0.171	Buried
	Pro449	0.386	54.802	1.275	Exposed
	Ala450	0.215	23.715	1.102	Buried
	Leu451	0.034	6.299	-0.488	Buried
	Asp452	0.501	72.266	0.840	Exposed
Non-Conserved Peptide 5	Leu330	0.440	80.601	-1.542	Exposed
	Thr331	0.421	58.420	-1.426	Exposed
	Leu332	0.375	68.736	-1.323	Exposed
	Asn333	0.396	57.945	0.098	Exposed
	Leu334	0.129	23.528	-1.193	Buried
	Glu335	0.487	85.096	-0.090	Exposed
	Asp336	0.539	77.699	0.590	Exposed

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	Val337	0.057	8.792	0.590	Buried
	Gln338	0.347	62.064	0.875	Exposed
	Pro339	0.340	48.303	0.242	Exposed

Supplementary Table-4: Amino acids involved in core/allowed and disallowed regions of Ramachandran Plot

S.No.	**Protein**	**Ramachandran Plot Regions**	
		Core/Allowed region amino acid Number	**Disallowed Region Amino acids**
1	MAP Hsp65	Met1 to Val221, Ser223 to Ala310, Ile312 to Glu523, Ala525 to Gly538, Asp540 and Phe541	Ser222, Asp 311, Lys524 and Met 539
2	GAD65	Met1 to Gly12, Glu14 to Ala27, Ala29 to Cys45, Leu47 to Lys396, Meth398 to Leu585	Ser13, Arg28, Ala46, and Meth397
3	Human Hsp60	Met1, Leu2, Leu4 to Gly 304, Gly306 to Ser447, Ser449 to Asn512, Val514 to Pro521, Lys523 to Phe573	Arg3, Phe305, Ser498, Meth513, Thr522.