

This document contains detailed contact prediction accuracy of our methods and a few others.

RX_submit Represents contact predictions submitted to CASP12 by RaptorX_Contact group
A variety of deep models were trained during the CASP12 season.
The uniprot sequence database dated in 2015 and Feb 2016 were used to generate MSA.

RX_postdict Represents our deep learning method trained right after CASP12.
This deep model was trained between August and September 2016 and
still uses the uniprot20 sequence database dated in February 2016 to build MSA.

metaPSICOV The latest version released on Sep 27, 2016.
MetaPSICOV and CCMpred are run locally to generate their contact predictions.

The predictions of Baker_GREMLIN and MetaPSICOV_submit are downloaded from CASP12 website.

For a fair comparison, we use the same MSAs for CCMpred, metaPSICOV, and RX_postdict.
These MSAs were built locally by running Hhblits with a uniprot database dated in Feb 2016.

Note:

The top L/k (k=1,2, 5, 10) is calculated by the number of correctly-predicted contacts among
top L/k predictions divided by L/k even if when one target has no L/k native contacts.

LONG-RANGE targets	len	meff	CCMpred				Baker GREMLIN				MetaPSICOV submit				MetaPSICOV				RX_submit				RX_postdict			
			L	L/2	L/5	L/10	L	L/2	L/5	L/10	L	L/2	L/5	L/10	L	L/2	L/5	L/10	L	L/2	L/5	L/10	L	L/2	L/5	L/10
T0859-D1	113	1.0	0.88	0.00	0.00	0.00	10.62	14.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.77	0.00	0.00	0.00	1.77	3.57	4.55	9.09	
T0862-D1	93	22.3	5.38	8.70	5.56	11.11	2.15	0.00	0.00	0.00	12.90	10.87	22.22	33.33	16.13	15.22	33.33	44.44	18.28	30.43	38.89	55.56	24.73	23.91	38.89	44.44
T0863-D1	193	52.0	3.63	6.25	5.26	0.00	3.63	4.17	2.63	5.26	8.29	13.54	13.16	5.26	3.63	3.13	2.63	5.26	9.33	17.71	28.95	26.32	25.91	37.50	50.00	68.42
T0863-D2	356	74.5	0.56	0.56	0.00	0.00	0.84	1.12	2.82	5.71	3.09	3.93	7.04	2.86	2.53	2.81	2.82	0.00	6.46	12.92	23.94	31.43	13.20	19.10	35.21	54.29
T0864-D1	246	209.1	20.33	27.64	48.98	58.33	19.92	30.89	51.02	66.67	36.18	53.66	65.31	87.50	33.33	43.90	67.35	75.00	40.65	62.60	79.59	87.50	69.11	85.37	100.00	100.00
T0866-D1	104	3383.6	57.69	88.46	100.00	100.00	50.96	76.92	95.00	90.00	73.08	96.15	100.00	100.00	72.12	90.38	100.00	100.00	75.00	84.62	95.00	100.00	84.62	94.23	95.00	100.00
T0869-D1	104	19.0	10.58	11.54	20.00	40.00	12.50	13.46	20.00	30.00	23.08	30.77	50.00	60.00	29.81	40.38	35.00	50.00	24.04	36.54	55.00	70.00	48.08	59.62	70.00	80.00
T0870-D1	123	58.2	6.50	8.20	0.00	0.00	8.94	6.56	4.17	0.00	13.01	14.75	8.33	16.67	9.76	9.84	12.50	16.67	9.76	11.48	12.50	0.00	30.08	44.26	41.67	33.33
T0878-D1	344	258.2	12.21	19.19	29.41	38.24	17.73	25.58	42.65	52.94	25.00	31.40	42.65	55.88	16.86	21.51	36.76	44.12	21.22	22.67	22.06	29.41	35.17	45.93	67.65	85.29
T0880-D2	157	1.0	2.55	3.85	9.68	6.67	5.10	6.41	0.00	0.00	14.65	16.67	22.58	26.67	13.38	17.95	29.03	46.67	12.74	15.38	19.35	13.33	49.68	60.26	67.74	60.00
T0886-D1	69	833.4	34.78	58.82	61.54	66.67	43.48	67.65	69.23	66.67	76.81	82.35	100.00	100.00	52.17	61.76	69.23	50.00	72.46	88.24	100.00	100.00	71.01	79.41	100.00	100.00
T0886-D2	127	821.0	25.98	41.27	60.00	83.33	30.71	61.90	88.00	91.67	70.08	90.48	100.00	100.00	46.46	49.21	80.00	91.67	64.57	82.54	92.00	100.00	81.89	98.41	100.00	100.00
T0888-D1	121	1.0	3.31	3.33	4.17	0.00	5.79	0.00	0.00	0.00	7.44	8.33	4.17	0.00	14.88	16.67	12.50	16.67	15.70	16.67	25.00	25.00	9.92	10.00	4.17	0.00
T0890-D2	106	23.5	5.66	3.77	4.76	10.00	3.77	5.66	4.76	10.00	10.38	15.09	9.52	0.00	15.09	15.09	9.52	10.00	14.15	16.98	19.05	30.00	20.75	18.87	14.29	20.00
T0892-D2	110	159.5	14.55	23.64	31.82	36.36	14.55	27.27	22.73	27.27	39.09	49.09	63.64	90.91	39.09	54.55	77.27	72.73	45.45	52.73	72.73	72.73	52.73	78.18	95.45	100.00
T0894-D1	89	83.4	13.48	15.91	29.41	37.50	14.61	25.00	11.76	25.00	16.85	13.64	0.00	0.00	14.61	22.73	41.18	62.50	14.61	9.09	5.88	12.50	35.96	43.18	35.29	37.50
T0896-D3	161	7.0	4.97	6.25	3.13	0.00	0.62	1.25	3.13	6.25	3.73	2.50	3.13	0.00	11.18	13.75	21.88	18.75	8.07	5.00	0.00	0.00	19.88	21.25	3.13	0.00
T0897-D2	138	19.3	5.07	4.35	3.70	0.00	2.90	0.00	0.00	0.00	3.62	4.35	3.70	0.00	13.04	14.49	11.11	7.69	7.25	5.80	11.11	23.08	5.80	7.25	3.70	0.00
T0897-D2	124	27.3	7.26	9.68	12.50	16.67	1.61	3.23	4.17	0.00	5.65	9.68	16.67	8.33	12.10	19.35	20.83	16.67	7.26	8.06	12.50	8.33	16.94	19.35	16.67	33.33
T0898-D1	106	30.0	6.60	7.55	0.00	0.00	0.94	1.89	0.00	0.00	16.98	22.64	23.81	10.00	14.15	20.75	14.29	20.00	17.92	24.53	33.33	20.00	34.91	45.28	57.14	60.00
T0899-D1	259	1047.6	22.78	31.01	45.10	56.00	1.54	0.78	0.00	0.00	40.93	57.36	88.24	96.00	37.84	62.79	84.31	92.00	36.68	57.36	84.31	88.00	52.90	71.32	94.12	100.00
T0899-D2	88	210.7	4.55	4.55	0.00	0.00	2.27	2.27	0.00	0.00	43.18	47.73	64.71	75.00	35.23	43.18	76.47	62.50	37.50	47.73	70.59	62.50	44.32	63.64	82.35	100.00
T0900-D1	102	3.0	10.78	11.76	5.00	10.00	13.73	13.73	25.00	20.00	56.86	74.51	95.00	100.00	38.24	37.25	45.00	30.00	35.29	31.37	35.00	60.00	41.18	50.98	45.00	50.00
T0901-D2	70	496.5	11.43	14.29	21.43	14.29	4.29	8.57	21.43	14.29	32.86	34.29	57.14	71.43	35.71	37.14	64.29	85.71	25.71	28.57	50.00	42.86	58.57	68.57	100.00	100.00
T0904-D1	251	34.3	4.38	6.40	6.00	12.00	2.39	4.80	8.00	4.00	17.93	20.00	26.00	20.00	15.14	20.80	28.00	32.00	21.91	23.20	28.00	40.00	60.56	75.20	94.00	96.00
T0905-D1	242	4967.3	41.32	52.07	60.42	58.33	19.42	31.40	45.83	54.17	63.22	77.69	93.75	91.67	56.61	75.21	93.75	100.00	57.02	76.86	95.83	100.00	67.36	82.64	95.83	100.00
T0905-D2	66	341.1	6.06	12.12	0.00	0.00	13.64	21.21	38.46	33.33	33.33	45.45	69.23	100.00	43.94	39.39	61.54	100.00	39.39	48.48	76.92	83.33	62.12	72.73	100.00	100.00
T0912-D3	103	619.7	12.62	17.65	15.00	10.00	4.85	9.80	25.00	50.00	28.16	27.45	45.00	70.00	15.53	27.45	35.00	50.00	28.16	43.14	75.00	100.00	45.63	66.67	80.00	90.00
T0914-D1	158	43.3	3.16	1.27	0.00	0.00	0.00	0.00	0.00	0.00	3.16	5.06	3.23	6.67	6.96	7.59	16.13	6.67	11.39	18.99	35.48	46.67	14.56	24.05	35.48	53.33
T0914-D2	162	20.0	3.70	2.47	6.25	6.25	0.00	0.00	0.00	0.00	8.02	11.11	15.63	12.50	8.64	11.11	6.25	12.50	9.88	14.81	15.63	25.00	11.73	13.58	18.75	25.00
T0915-D1	154	17.0	6.49	5.19	0.00	0.00	3.25	5.19	0.00	0.00	20.78	23.38	36.67	40.00	17.53	24.68	46.67	53.33	23.38	31.17	40.00	66.67	37.66	48.05	50.00	46.67
T0918-D1	108	2827.4	29.63	44.44	52.38	70.00	27.78	50.00	80.95	100.00	46.30	62.96	71.43	90.00	41.67	61.11	85.71	80.00	50.93	72.22	85.71	90.00	59.26	70.37	85.71	100.00
T0918-D2	123	731.8	30.89	40.98	45.83	66.67	19.51	37.70	58.33	75.00	51.22	68.85	79.17	66.67	47.15	62.30	91.67	100.00	73.98	90.16	100.00	100.00	61.79	83.61	100.00	100.00
T0918-D3	118	2853.2	26.27	37.29	60.87	90.91	29.66	45.76	56.52	72.73	40.68	57.63	86.96	81.82	38.14	57.63	82.61	81.82	52.54	74.58	82.61	81.82	50.00	64.41	78.26	90.91
T0923-D1	286	6.0	2.10	3.50	8.77	3.57	2.10	3.50	8.77	10.71	10.84	11.19	12.28	10.71	15.03	16.08	14.04	14.29	13.29	18.18	19.30	10.71	20.28	27.97	22.81	25.00
T0941-D1	341	2.0	0.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.69	5.88	8.82	5.88	4.69	5.29	1.47	2.94	4.40	4.12	1.47	2.94	4.11	3.53	1.47	2.94
T0946-D1	80	123.7	18.75	15.00	25.00	37.50	20.00	27.50	68.75	87.50	42.50	57.50	62.50	87.50	26.25	35.00	31.25	25.00	51.25	62.50	87.50	100.00	62.50	75.00	93.75	100.00
average			12.91	17.54	21.13	25.42	11.24	17.18	23.22	27.00	27.15	34.00	42.48	46.57	24.72	31.28	41.66	45.34	28.63	36.42	46.76	51.50	40.18	50.20	58.87	63.93

MEDIUM-RANGE targets	len	meff	CCMpred				Baker GREMLIN				MetaPSICOV_submit				MetaPSICOV				RX_submit				RX_postdict			
			L	L/2	L/5	L/10	L	L/2	L/5	L/10	L	L/2	L/5	L/10	L	L/2	L/5	L/10	L	L/2	L/5	L/10	L	L/2	L/5	L/10
T0859-D1	113	1.0	11.50	12.50	27.27	36.36	0.88	1.79	4.55	0.00	15.93	16.07	18.18	9.09	11.50	12.50	9.09	9.09	14.16	19.64	18.18	9.09	7.08	5.36	4.55	9.09
T0862-D1	93	22.3	7.53	4.35	0.00	0.00	1.08	2.17	5.56	11.11	10.75	8.70	5.56	11.11	12.90	19.57	33.33	55.56	10.75	19.57	27.78	44.44	17.20	26.09	55.56	88.89
T0863-D1	193	52.0	4.66	7.29	7.89	10.53	4.66	7.29	7.89	10.53	6.74	10.42	18.42	21.05	9.33	13.54	13.16	15.79	8.29	10.42	13.16	21.05	13.47	18.75	23.68	36.84
T0863-D2	356	74.5	1.40	1.69	2.82	5.71	0.84	1.12	2.82	5.71	2.81	5.06	2.82	2.86	3.65	3.93	5.63	2.86	5.90	6.18	4.23	2.86	8.15	12.36	16.90	22.86
T0864-D1	246	209.1	15.04	20.33	28.57	33.33	13.01	21.14	34.69	45.83	30.89	44.72	67.35	75.00	38.21	57.72	67.35	87.50	39.43	66.67	91.84	100.00	44.72	75.61	100.00	100.00
T0866-D1	104	3383.6	30.77	57.69	90.00	100.00	25.96	42.31	95.00	100.00	46.15	76.92	95.00	100.00	48.08	76.92	95.00	100.00	49.04	78.85	95.00	90.00	49.04	92.31	100.00	100.00
T0869-D1	104	19.0	5.77	5.77	15.00	20.00	2.88	5.77	5.00	0.00	12.50	19.23	20.00	30.00	11.54	15.38	20.00	30.00	14.42	21.15	30.00	40.00	24.04	38.46	55.00	40.00
T0870-D1	123	58.2	5.69	6.56	16.67	25.00	4.07	8.20	16.67	25.00	15.45	19.67	37.50	50.00	14.63	14.75	25.00	50.00	13.01	13.11	25.00	33.33	21.14	28.23	45.83	66.67
T0878-D1	344	258.2	10.17	16.28	22.06	35.29	9.30	15.70	32.35	41.18	28.78	44.19	67.65	79.41	28.78	44.77	61.76	61.76	29.94	43.60	60.29	67.65	35.47	54.07	82.35	88.24
T0880-D2	157	1.0	4.46	1.28	0.00	0.00	8.28	0.00	0.00	0.00	23.57	24.36	19.35	13.33	8.28	10.26	12.90	13.33	17.20	10.26	9.68	6.67	31.21	35.90	48.39	60.00
T0886-D1	69	833.4	18.84	35.29	53.85	66.67	15.94	32.35	61.54	66.67	39.13	61.76	53.85	66.67	31.88	35.29	37.70	50.00	28.99	29.41	53.85	50.00	39.13	61.76	84.62	100.00
T0886-D2	127	821.0	18.90	33.33	36.00	50.00	14.17	28.57	72.00	91.67	42.52	58.73	80.00	91.67	32.28	50.79	72.00	91.67	37.80	52.38	80.00	100.00	45.67	65.08	88.00	100.00
T0888-D1	121	1.0	6.61	10.00	8.33	16.67	9.92	13.33	20.83	16.67	12.40	16.67	16.67	16.67	9.92	10.00	8.33	8.33	13.22	20.00	25.00	25.00	14.88	18.33	33.33	50.00
T0890-D2	106	23.5	7.55	9.43	9.52	0.00	1.89	1.89	4.76	10.00	11.32	15.09	14.29	30.00	10.38	11.32	19.05	20.00	10.38	16.98	28.57	40.00	17.92	30.19	47.62	60.00
T0892-D2	110	159.5	4.55	7.27	13.64	18.18	3.64	7.27	18.18	27.27	10.00	14.55	31.82	54.55	3.64	3.64	9.09	18.18	8.18	14.55	27.27	54.55	10.91	16.36	31.82	45.45
T0894-D1	89	83.4	10.11	9.09	5.88	12.50	1.12	2.27	5.88	12.50	29.21	36.36	41.18	50.00	26.97	31.82	41.18	37.50	20.22	22.73	35.29	62.50	46.07	77.27	94.12	100.00
T0896-D3	161	7.0	3.73	3.75	6.25	12.50	8.07	0.00	0.00	0.00	7.45	13.75	21.88	37.50	1.86	1.25	0.00	0.00	3.73	6.25	3.13	6.25	7.45	3.75	0.00	0.00
T0897-D1	138	19.3	4.35	5.80	3.70	0.00	5.80	7.25	3.70	7.69	8.70	10.14	14.81	15.38	10.87	11.59	11.11	7.69	7.97	7.25	7.41	7.69	9.42	8.70	11.11	7.69
T0897-D2	124	27.3	11.29	12.90	16.67	25.00	4.03	3.23	4.17	0.00	23.39	33.87	54.17	50.00	23.39	24.19	33.33	41.67	16.94	27.42	37.50	50.00	22.58	33.87	58.33	83.33
T0898-D1	106	30.0	4.72	5.66	4.76	10.00	0.94	1.89	4.76	10.00	12.26	18.87	33.33	50.00	13.21	20.75	42.86	40.00	14.15	24.53	28.57	50.00	18.87	30.19	52.38	70.00
T0899-D1	259	1047.6	3.47	3.88	5.88	8.00	0.00	0.00	0.00	0.00	8.49	10.08	13.73	12.00	8.49	13.18	19.61	24.00	8.49	10.85	9.80	8.00	10.42	17.83	31.37	28.00
T0899-D2	88	210.7	7.95	4.55	5.88	12.50	4.55	4.55	5.88	0.00	12.50	18.18	35.29	37.50	10.23	15.91	35.29	62.50	27.27	40.91	47.06	37.50	26.14	40.91	47.06	50.00
T0900-D1	102	9.0	7.84	15.69	10.00	0.00	1.96	3.92	0.00	0.00	21.57	29.41	25.00	40.00	16.67	23.53	15.00	20.00	17.65	27.45	40.00	50.00	19.61	23.53	20.00	30.00
T0901-D2	70	496.5	17.14	20.00	35.71	28.57	20.00	11.43	14.29	0.00	4.29	2.86	7.14	0.00	11.43	14.29	14.29	28.57	18.57	34.29	64.29	85.71	28.57	54.29	71.43	85.71
T0904-D1	251	34.3	2.79	3.20	2.00	4.00	2.79	4.00	8.00	8.00	16.73	27.20	40.00	52.00	13.15	24.00	40.00	56.00	18.33	28.00	40.00	60.00	20.32	40.80	74.00	80.00
T0905-D1	242	4967.3	7.44	10.74	18.75	33.33	4.55	2.48	4.17	8.33	11.98	16.53	29.17	37.50	11.57	17.36	27.08	33.33	10.33	18.18	25.00	41.67	13.22	21.49	29.17	37.50
T0905-D2	66	341.1	15.15	21.21	23.08	33.33	16.67	12.12	7.69	16.67	15.15	18.18	23.08	16.67	12.12	15.15	23.08	16.67	18.18	36.36	61.54	83.33	34.85	54.55	61.54	83.33
T0912-D3	103	619.7	13.59	15.69	15.00	30.00	15.53	23.53	40.00	40.00	30.10	49.02	65.00	90.00	24.27	35.29	65.00	70.00	33.01	54.90	75.00	90.00	31.07	47.06	75.00	90.00
T0914-D1	158	43.3	8.86	8.86	16.13	33.33	2.53	0.00	0.00	0.00	20.25	30.38	32.26	33.33	24.05	35.44	51.61	40.00	24.05	36.71	67.74	93.33	27.22	45.57	77.42	93.33
T0914-D2	162	20.0	6.79	9.88	6.25	6.25	0.62	1.23	3.13	6.25	24.07	40.74	65.63	81.25	22.22	34.57	59.38	68.75	29.63	45.68	56.25	75.00	27.78	38.27	75.00	81.25
T0915-D1	154	17.0	7.14	7.79	10.00	20.00	1.95	3.90	6.67	13.33	20.13	27.27	33.33	33.33	20.13	28.57	43.33	46.67	20.78	33.77	40.00	60.00	22.73	36.36	63.33	73.33
T0918-D1	108	2827.4	17.59	29.63	42.86	60.00	15.74	16.67	42.86	50.00	28.70	46.30	80.95	80.00	27.78	40.74	66.67	60.00	39.81	64.81	90.48	90.00	36.11	57.41	90.48	100.00
T0918-D2	123	731.8	15.45	22.95	37.50	50.00	8.94	18.03	33.33	58.33	36.59	54.10	83.33	91.67	31.71	55.74	79.17	91.67	43.90	70.49	91.67	100.00	40.65	67.21	95.83	100.00
T0918-D3	118	2853.2	20.34	33.90	43.48	63.64	9.32	18.64	47.83	81.82	32.20	52.54	78.26	90.91	34.75	64.41	82.61	90.91	36.44	71.19	82.61	90.91	36.44	67.80	86.96	90.91
T0923-D1	286	6.0	4.20	2.10	1.75	3.57	0.35	0.70	1.75	3.57	21.68	27.97	33.33	39.29	25.52	39.16	56.14	60.71	31.82	51.05	66.67	89.29	32.87	55.94	78.95	100.00
T0941-D1	341	2.0	7.62	7.65	7.35	14.71	9.38	12.94	7.35	8.82	35.48	44.12	55.88	64.71	29.62	42.94	61.76	73.53	37.83	51.76	60.29	52.94	27.86	40.00	54.41	52.94
T0946-D1	80	123.7	18.75	22.50	37.50	62.50	22.50	27.50	50.00	75.00	36.25	55.00	93.75	100.00	25.00	40.00	62.50	87.50	46.25	62.50	93.75	100.00	41.25	60.00	81.25	75.00
average			9.98	13.95	18.86	25.31	7.11	9.53	18.06	22.49	19.79	28.59	39.00	45.60	18.23	26.12	36.27	42.65	20.89	31.90	43.92	53.72	25.28	39.52	56.83	66.54

