

# Binding affinities of 438 HLA Class I and II proteins to the complete proteomes of seven (potentially) pandemic viruses and distributions of strongest and weakest HLA peptide binders in human populations worldwide

## Supplementary material 1

### Extended results for the binding predictions for SARS-CoV-2

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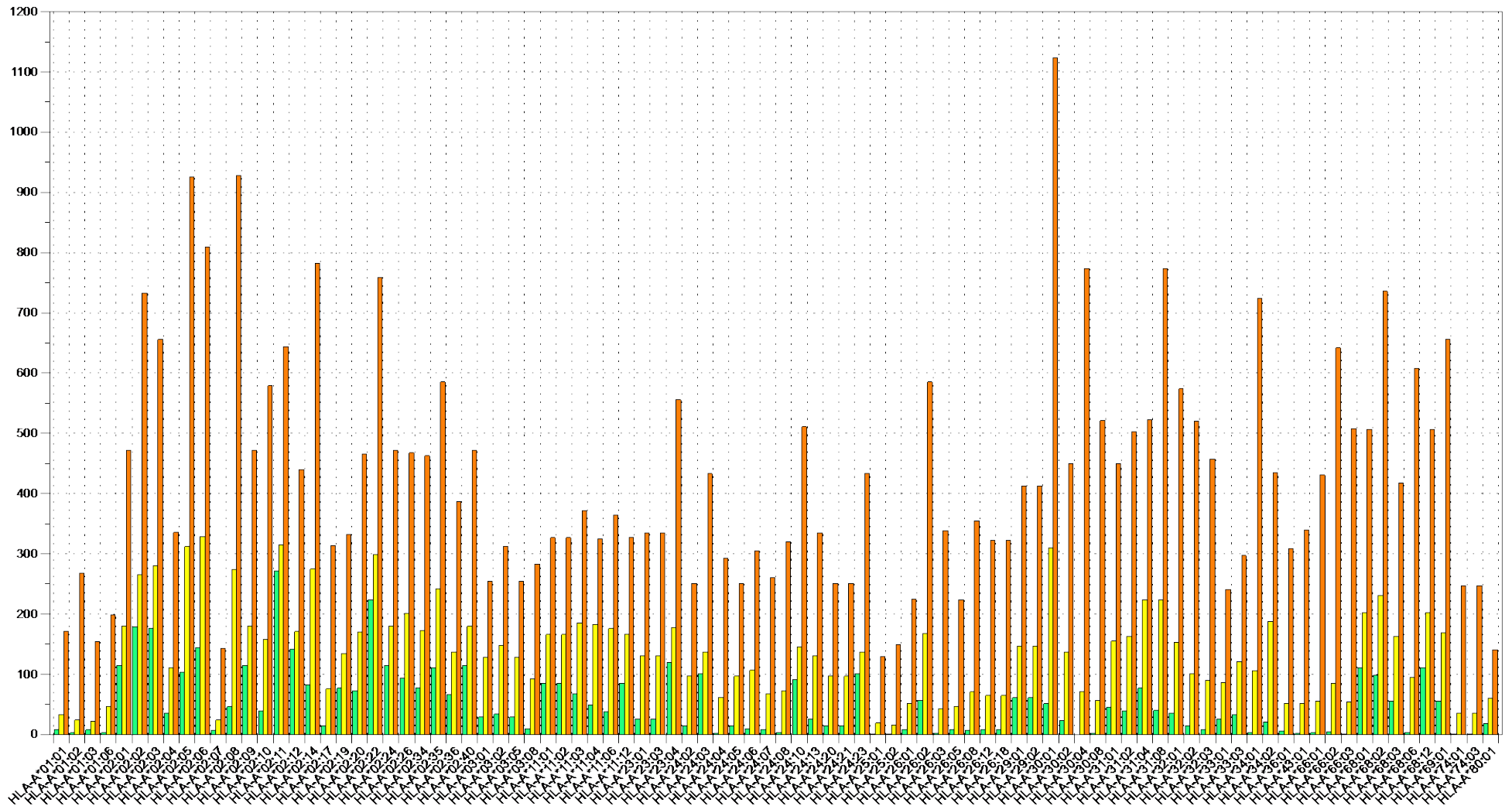
## Total number of peptides with strong, regular and weak binding predictions for *HLA-A*

	<b>IC<sub>50</sub> ≤ 50 nM</b> Strong binders	<b>50 nM &lt; IC<sub>50</sub> ≤ 500 nM</b> Regular binders	<b>500 nM &lt; IC<sub>50</sub> ≤ 5000 nM</b> Weak binders	<b>IC<sub>50</sub> &gt; 5000 nM</b> Non binders
HLA-A*01:01	8	33	172	6876
HLA-A*01:02	3	24	268	6794
HLA-A*01:03	8	22	154	6905
HLA-A*01:06	3	46	199	6841
HLA-A*02:01	115	180	472	6322
HLA-A*02:02	179	265	733	5912
HLA-A*02:03	176	280	656	5977
HLA-A*02:04	35	111	336	6607
HLA-A*02:05	104	312	926	5747
HLA-A*02:06	144	329	809	5807
HLA-A*02:07	7	24	143	6915
HLA-A*02:08	46	274	928	5841
HLA-A*02:09	115	180	472	6322
HLA-A*02:10	39	158	579	6313
HLA-A*02:11	272	315	644	5858
HLA-A*02:12	142	171	440	6336
HLA-A*02:14	83	275	782	5949
HLA-A*02:17	15	76	314	6684
HLA-A*02:19	77	135	332	6545
HLA-A*02:20	73	170	466	6380
HLA-A*02:22	224	299	759	5807
HLA-A*02:24	115	180	472	6322
HLA-A*02:26	94	201	468	6326
HLA-A*02:34	78	173	463	6375
HLA-A*02:35	111	242	585	6151
HLA-A*02:36	66	137	386	6500
HLA-A*02:40	115	180	472	6322
HLA-A*03:01	29	128	254	6678
HLA-A*03:02	34	148	312	6595
HLA-A*03:05	29	128	254	6678
HLA-A*03:08	10	93	283	6703
HLA-A*11:01	85	166	327	6511
HLA-A*11:02	85	166	327	6511
HLA-A*11:03	68	185	372	6464
HLA-A*11:04	49	183	325	6532
HLA-A*11:06	38	176	364	6511
HLA-A*11:12	85	166	327	6511
HLA-A*23:01	26	131	335	6597
HLA-A*23:03	26	131	335	6597
HLA-A*23:04	120	178	556	6235
HLA-A*24:02	15	97	251	6726
HLA-A*24:03	101	137	433	6418
HLA-A*24:04	2	62	293	6732
HLA-A*24:05	15	97	251	6726
HLA-A*24:06	10	107	305	6667
HLA-A*24:07	9	68	261	6751
HLA-A*24:08	4	73	320	6692
HLA-A*24:10	91	146	511	6341
HLA-A*24:13	26	131	335	6597
HLA-A*24:20	15	97	251	6726
HLA-A*24:21	15	97	251	6726
HLA-A*24:23	101	137	433	6418
HLA-A*25:01	1	19	130	6939
HLA-A*25:02	1	16	149	6923
HLA-A*26:01	9	51	225	6804
HLA-A*26:02	57	168	585	6279
HLA-A*26:03	2	43	339	6705
HLA-A*26:05	8	47	224	6810
HLA-A*26:08	7	71	355	6656
HLA-A*26:12	9	65	323	6692
HLA-A*26:18	9	65	323	6692
HLA-A*29:01	61	147	413	6468

	<b>IC<sub>50</sub> ≤ 50 nM</b> <b>Strong binders</b>	<b>50 nM &lt; IC<sub>50</sub> ≤ 500 nM</b> <b>Regular binders</b>	<b>500 nM &lt; IC<sub>50</sub> ≤ 5000 nM</b> <b>Weak binders</b>	<b>IC<sub>50</sub> &gt; 5000 nM</b> <b>Non binders</b>
HLA-A*29:02	61	147	413	6468
HLA-A*30:01	51	310	1123	5605
HLA-A*30:02	23	137	450	6479
HLA-A*30:04	0	72	774	6243
HLA-A*30:08	2	57	521	6509
HLA-A*31:01	45	155	450	6439
HLA-A*31:02	39	163	503	6384
HLA-A*31:04	77	224	522	6266
HLA-A*31:08	40	223	774	6052
HLA-A*32:01	36	153	574	6326
HLA-A*32:02	14	101	520	6454
HLA-A*32:03	8	90	457	6534
HLA-A*33:01	26	86	241	6736
HLA-A*33:03	33	121	297	6638
HLA-A*34:01	4	106	724	6255
HLA-A*34:02	21	188	435	6445
HLA-A*36:01	6	51	309	6723
HLA-A*43:01	2	52	340	6695
HLA-A*66:01	3	55	431	6600
HLA-A*66:02	5	85	642	6357
HLA-A*66:03	1	54	508	6526
HLA-A*68:01	111	203	507	6268
HLA-A*68:02	98	231	736	6024
HLA-A*68:03	56	163	418	6452
HLA-A*68:06	4	95	608	6382
HLA-A*68:12	111	203	507	6268
HLA-A*69:01	56	169	656	6208
HLA-A*74:01	1	36	247	6805
HLA-A*74:03	1	36	247	6805
HLA-A*80:01	18	60	141	6870

Alleles are ordered alphabetically.

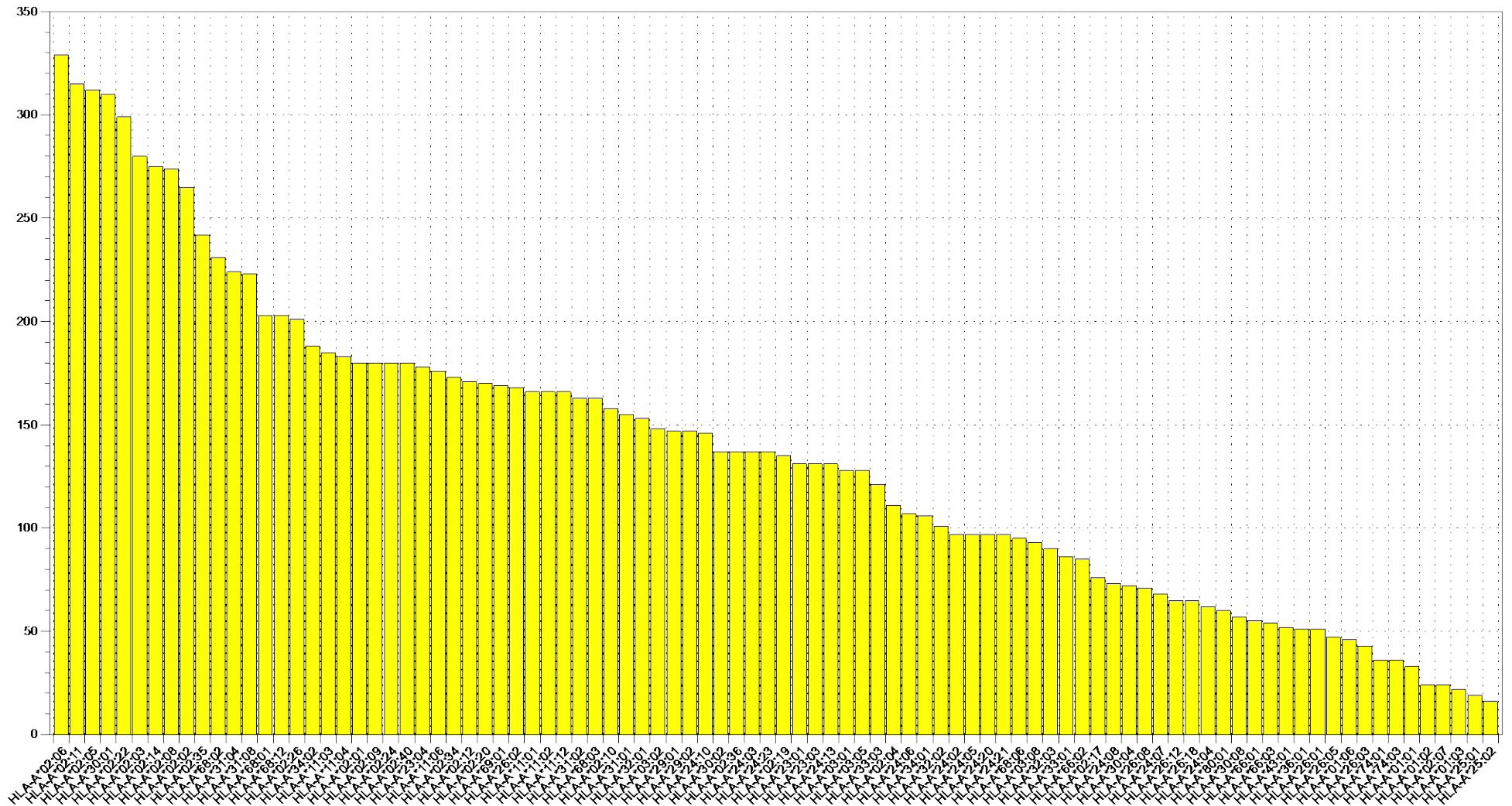
## General binding prediction tendencies for *HLA-A*



Alleles are ordered alphabetically on the x-axis, while the number of peptides binding with strong ( $IC_{50} \leq 50$  nM), regular ( $50$  nM  $< IC_{50} \leq 500$  nM) and weak ( $500$  nM  $< IC_{50} \leq 5000$  nM) binding prediction are displayed on the y-axis.



## HLA-A alleles ordered by number of presented peptides with regular binding prediction



Alleles are ordered on the x-axis by their regular ( $50 \text{ nM} < IC_{50} \leq 500 \text{ nM}$ ) binding prediction and the number of peptides presented are displayed on the y-axis.



## Total number of peptides with strong, regular and weak binding predictions for *HLA-B*

	<b>IC<sub>50</sub> ≤ 50 nM</b> Strong binders	<b>50 nM &lt; IC<sub>50</sub> ≤ 500 nM</b> Regular binders	<b>500 nM &lt; IC<sub>50</sub> ≤ 5000 nM</b> Weak binders	<b>IC<sub>50</sub> &gt; 5000 nM</b> Non binders
HLA-B*07:02	15	51	251	6772
HLA-B*07:04	6	57	270	6756
HLA-B*07:05	18	64	314	6693
HLA-B*07:06	18	64	314	6693
HLA-B*08:01	12	73	444	6560
HLA-B*08:03	0	1	47	7041
HLA-B*08:04	3	33	404	6649
HLA-B*08:05	5	39	351	6694
HLA-B*13:01	6	65	664	6354
HLA-B*13:02	0	15	331	6743
HLA-B*13:03	0	18	378	6693
HLA-B*13:04	0	26	624	6439
HLA-B*14:01	1	16	192	6880
HLA-B*14:02	1	16	192	6880
HLA-B*14:03	0	11	226	6852
HLA-B*15:01	59	207	649	6174
HLA-B*15:02	29	177	589	6294
HLA-B*15:03	203	478	1162	5246
HLA-B*15:04	0	33	686	6370
HLA-B*15:05	43	243	796	6007
HLA-B*15:06	63	220	681	6125
HLA-B*15:07	22	174	609	6284
HLA-B*15:08	2	54	354	6679
HLA-B*15:09	2	9	104	6974
HLA-B*15:10	1	10	106	6972
HLA-B*15:11	3	52	347	6687
HLA-B*15:12	3	97	423	6566
HLA-B*15:13	0	34	508	6547
HLA-B*15:15	13	140	533	6403
HLA-B*15:16	33	208	665	6183
HLA-B*15:17	154	282	551	6102
HLA-B*15:18	1	52	404	6632
HLA-B*15:20	44	233	771	6041
HLA-B*15:21	0	23	305	6761
HLA-B*15:24	0	52	560	6477
HLA-B*15:25	104	231	820	5934
HLA-B*15:27	33	178	528	6350
HLA-B*15:29	65	293	938	5793
HLA-B*15:31	16	150	680	6243
HLA-B*15:32	43	230	822	5994
HLA-B*15:34	59	207	649	6174
HLA-B*15:35	19	160	564	6346
HLA-B*15:38	42	208	728	6111
HLA-B*15:39	103	239	834	5913
HLA-B*15:40	14	136	567	6372
HLA-B*15:58	0	19	365	6705
HLA-B*18:01	9	48	226	6806
HLA-B*18:02	6	50	341	6692
HLA-B*18:03	3	43	286	6757
HLA-B*18:05	9	48	226	6806
HLA-B*18:07	2	30	345	6712
HLA-B*27:02	0	13	67	7009
HLA-B*27:03	0	3	48	7038
HLA-B*27:04	1	17	95	6976
HLA-B*27:05	8	53	188	6840
HLA-B*27:06	20	50	235	6784
HLA-B*27:07	28	84	351	6626
HLA-B*27:08	11	46	210	6822
HLA-B*27:09	19	57	227	6786
HLA-B*27:12	12	77	294	6706
HLA-B*27:14	0	18	131	6940
HLA-B*35:01	61	169	542	6317

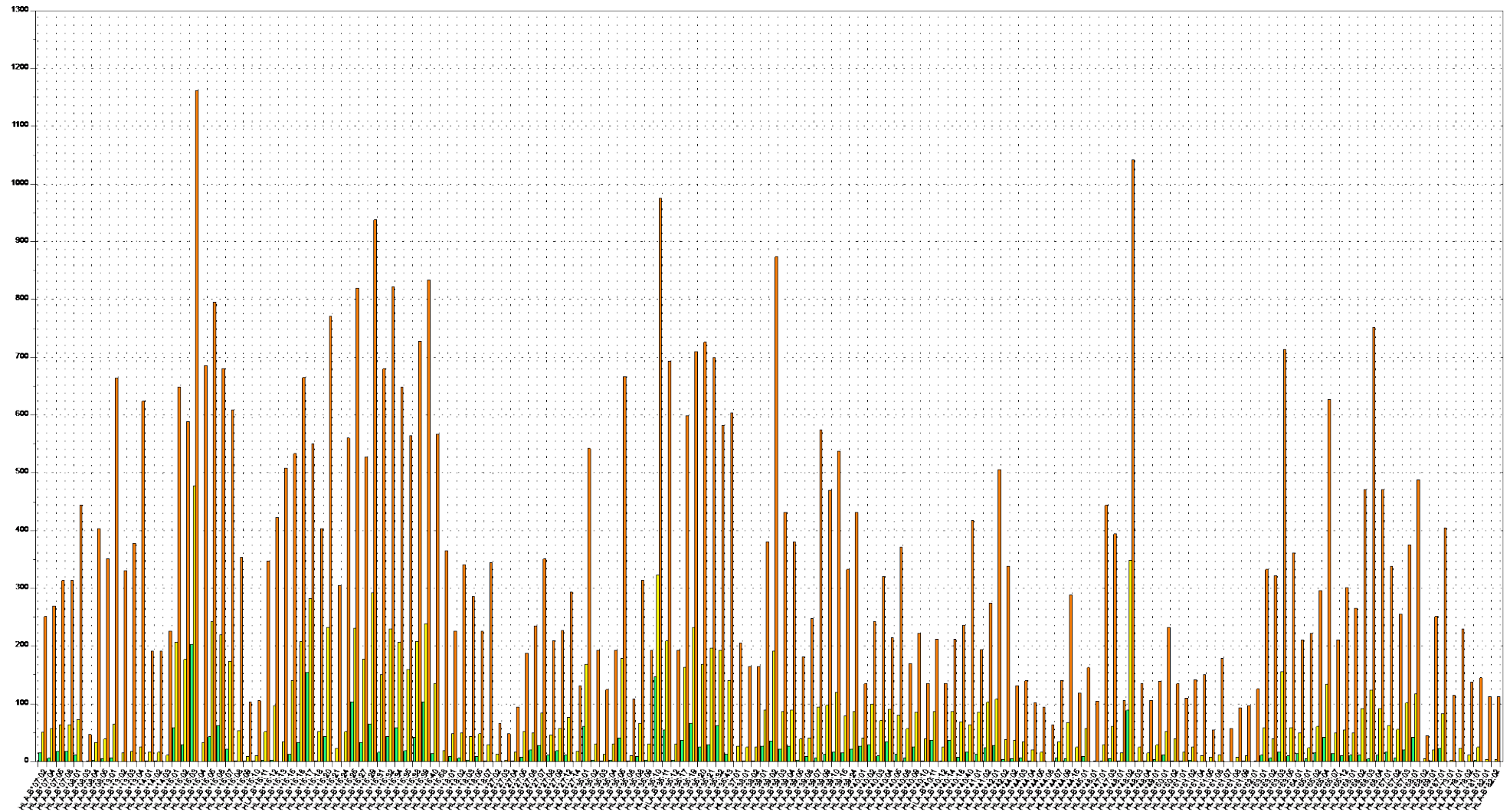


	IC <sub>50</sub> ≤ 50 nM Strong binders	50 nM < IC <sub>50</sub> ≤ 500 nM Regular binders	500 nM < IC <sub>50</sub> ≤ 5000 nM Weak binders	IC <sub>50</sub> > 5000 nM Non binders
HLA-B*35:02	3	31	193	6862
HLA-B*35:03	2	13	125	6949
HLA-B*35:04	3	31	193	6862
HLA-B*35:05	41	179	667	6202
HLA-B*35:06	2	10	109	6968
HLA-B*35:08	9	66	314	6700
HLA-B*35:09	3	31	193	6862
HLA-B*35:10	147	323	976	5643
HLA-B*35:11	55	209	693	6132
HLA-B*35:12	3	31	193	6862
HLA-B*35:17	37	163	599	6290
HLA-B*35:19	67	233	710	6079
HLA-B*35:20	26	169	726	6168
HLA-B*35:21	30	197	699	6163
HLA-B*35:32	63	193	582	6251
HLA-B*35:43	13	141	604	6331
HLA-B*37:01	0	27	205	6857
HLA-B*38:01	2	25	165	6897
HLA-B*38:02	2	26	165	6896
HLA-B*39:01	27	89	381	6592
HLA-B*39:02	36	191	874	5988
HLA-B*39:03	22	87	432	6548
HLA-B*39:04	27	89	381	6592
HLA-B*39:05	3	39	182	6865
HLA-B*39:06	9	41	248	6791
HLA-B*39:07	7	95	574	6413
HLA-B*39:09	13	98	470	6508
HLA-B*39:10	16	120	538	6415
HLA-B*39:15	15	79	333	6662
HLA-B*39:24	22	87	432	6548
HLA-B*40:01	27	41	135	6886
HLA-B*40:02	29	100	242	6718
HLA-B*40:03	10	71	321	6687
HLA-B*40:04	35	91	214	6749
HLA-B*40:05	13	81	371	6624
HLA-B*40:06	6	57	170	6856
HLA-B*40:09	25	86	222	6756
HLA-B*40:10	1	40	136	6912
HLA-B*40:11	37	87	212	6753
HLA-B*40:12	1	25	136	6927
HLA-B*40:14	37	87	212	6753
HLA-B*40:16	8	69	236	6776
HLA-B*40:40	17	64	418	6590
HLA-B*41:01	13	86	194	6796
HLA-B*41:02	24	103	275	6687
HLA-B*42:01	28	108	506	6447
HLA-B*42:02	4	38	339	6708
HLA-B*44:02	5	37	132	6915
HLA-B*44:03	7	35	140	6907
HLA-B*44:04	2	21	102	6964
HLA-B*44:05	0	16	95	6978
HLA-B*44:06	0	0	64	7025
HLA-B*44:07	7	35	140	6907
HLA-B*44:09	5	68	289	6727
HLA-B*44:15	0	25	119	6945
HLA-B*45:01	9	57	163	6860
HLA-B*46:01	0	2	105	6982
HLA-B*47:01	1	30	444	6614
HLA-B*47:03	5	61	394	6629
HLA-B*48:01	1	15	106	6967
HLA-B*48:02	89	348	1042	5610
HLA-B*48:03	1	25	136	6927
HLA-B*48:04	1	15	106	6967
HLA-B*49:01	4	29	139	6917
HLA-B*50:01	11	53	233	6792

	<b>IC<sub>50</sub> ≤ 50 nM</b> <b>Strong binders</b>	<b>50 nM &lt; IC<sub>50</sub> ≤ 500 nM</b> <b>Regular binders</b>	<b>500 nM &lt; IC<sub>50</sub> ≤ 5000 nM</b> <b>Weak binders</b>	<b>IC<sub>50</sub> &gt; 5000 nM</b> <b>Non binders</b>
HLA-B*50:02	1	40	135	6913
HLA-B*51:01	2	16	110	6961
HLA-B*51:02	3	25	142	6919
HLA-B*51:04	0	10	151	6928
HLA-B*51:05	0	8	55	7026
HLA-B*51:06	0	12	179	6898
HLA-B*51:07	0	0	58	7031
HLA-B*51:08	0	8	93	6988
HLA-B*51:09	1	10	97	6981
HLA-B*52:01	0	2	126	6961
HLA-B*53:01	11	59	333	6686
HLA-B*53:02	6	40	322	6721
HLA-B*53:03	17	156	713	6203
HLA-B*53:05	10	59	361	6659
HLA-B*54:01	14	50	211	6814
HLA-B*55:01	5	24	222	6838
HLA-B*55:02	15	61	296	6717
HLA-B*55:04	42	134	627	6286
HLA-B*55:07	14	50	211	6814
HLA-B*55:12	10	55	302	6722
HLA-B*56:01	11	50	266	6762
HLA-B*56:02	12	92	471	6514
HLA-B*56:03	5	124	752	6208
HLA-B*56:04	12	92	471	6514
HLA-B*57:01	16	63	339	6671
HLA-B*57:02	6	56	256	6771
HLA-B*57:03	21	102	375	6591
HLA-B*58:01	42	117	488	6442
HLA-B*58:02	0	5	45	7039
HLA-B*59:01	2	20	251	6816
HLA-B*67:01	23	83	405	6578
HLA-B*73:01	0	3	115	6971
HLA-B*78:01	0	23	230	6836
HLA-B*78:02	0	12	138	6939
HLA-B*81:01	3	25	145	6916
HLA-B*82:01	0	4	113	6972
HLA-B*82:02	0	4	113	6972

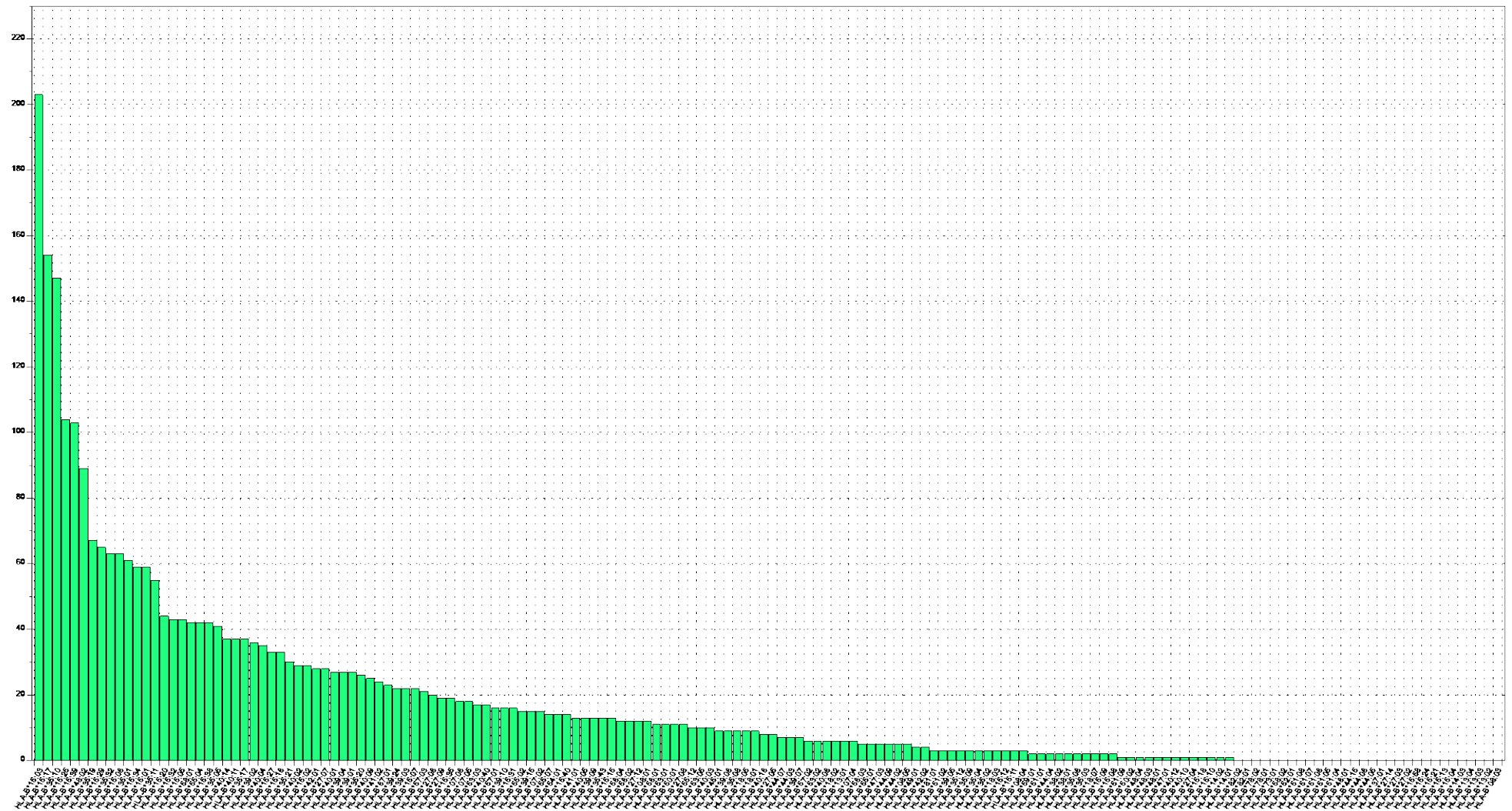
Alleles are ordered alphabetically.

## General binding prediction tendencies for *HLA-B*



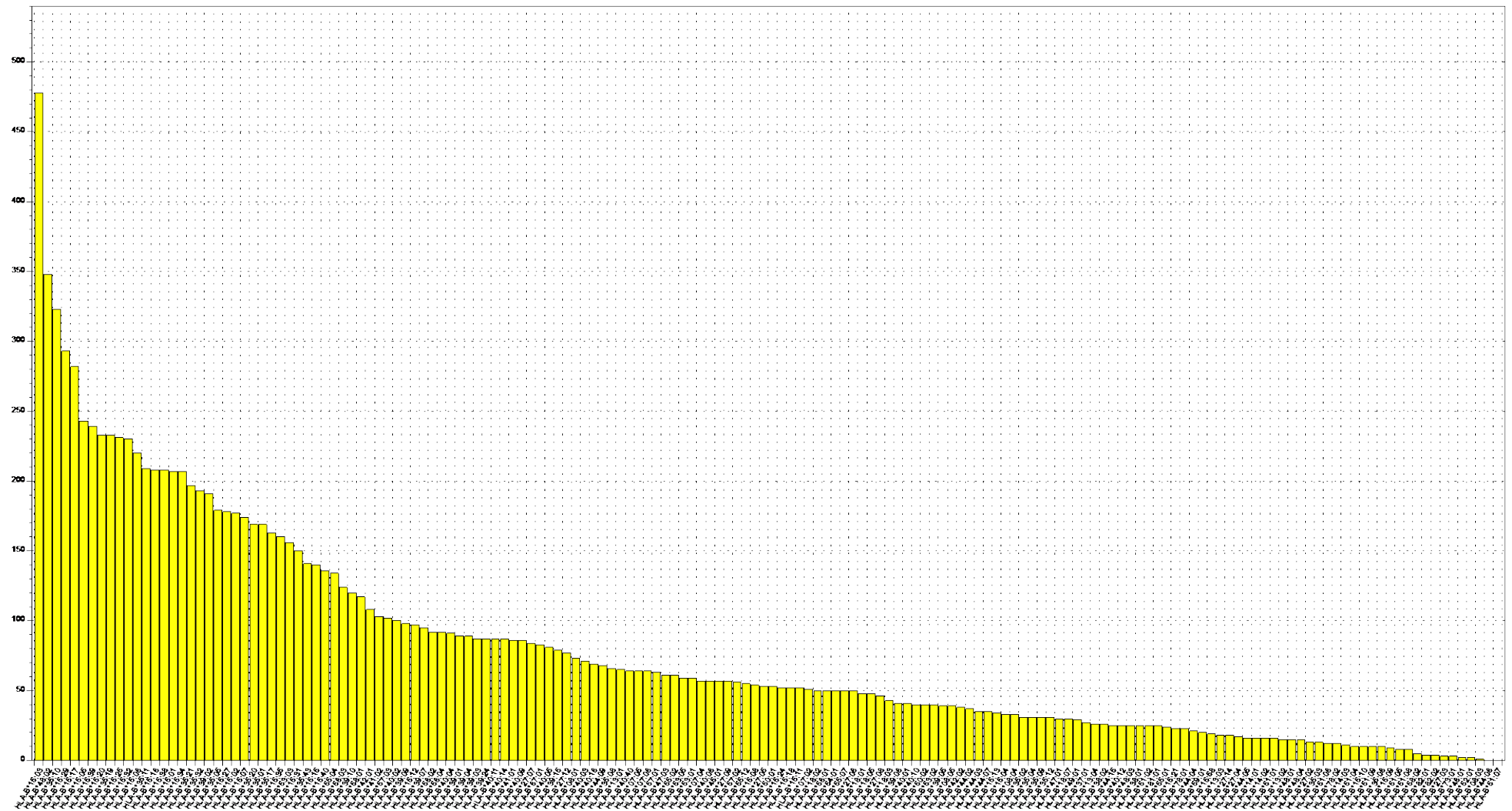
Alleles are ordered alphabetically on the x-axis, while the number of peptides binding with strong ( $IC_{50} \leq 50$  nM), regular ( $50$  nM  $< IC_{50} \leq 500$  nM) and weak ( $500$  nM  $< IC_{50} \leq 5000$  nM) binding prediction are displayed on the y-axis.

## HLA-B alleles ordered by number of presented peptides with strong binding prediction



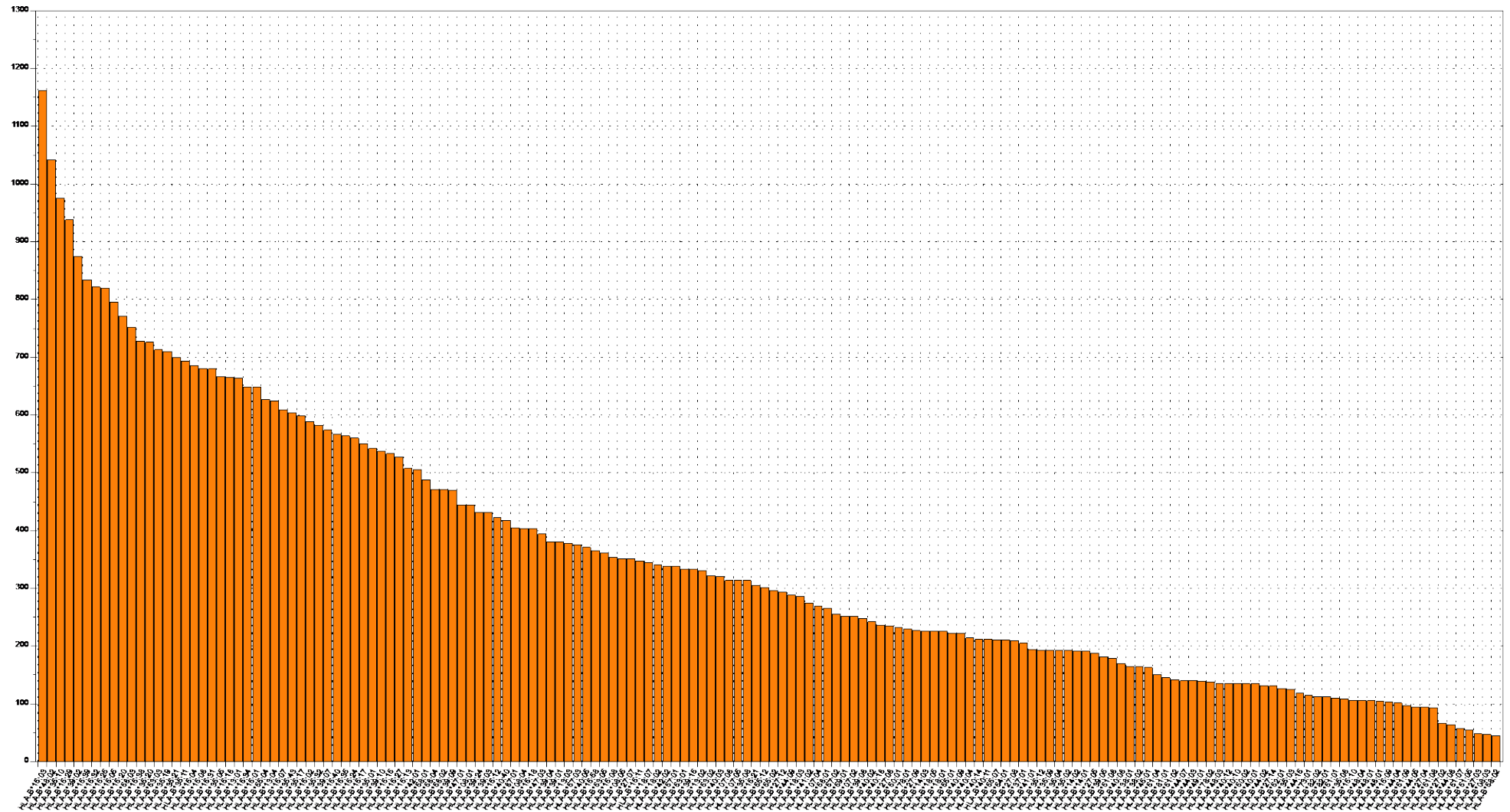
Alleles are ordered on the x-axis by their strong ( $IC_{50} \leq 50$  nM) binding prediction and the number of peptides presented are displayed on the y-axis.

## HLA-B alleles ordered by number of presented peptides with regular binding prediction



Alleles are ordered on the x-axis by their regular ( $50 \text{ nM} < IC_{50} \leq 500 \text{ nM}$ ) binding prediction and the number of peptides presented are displayed on the y-axis.

## HLA-B alleles ordered by number of presented peptides with weak binding prediction



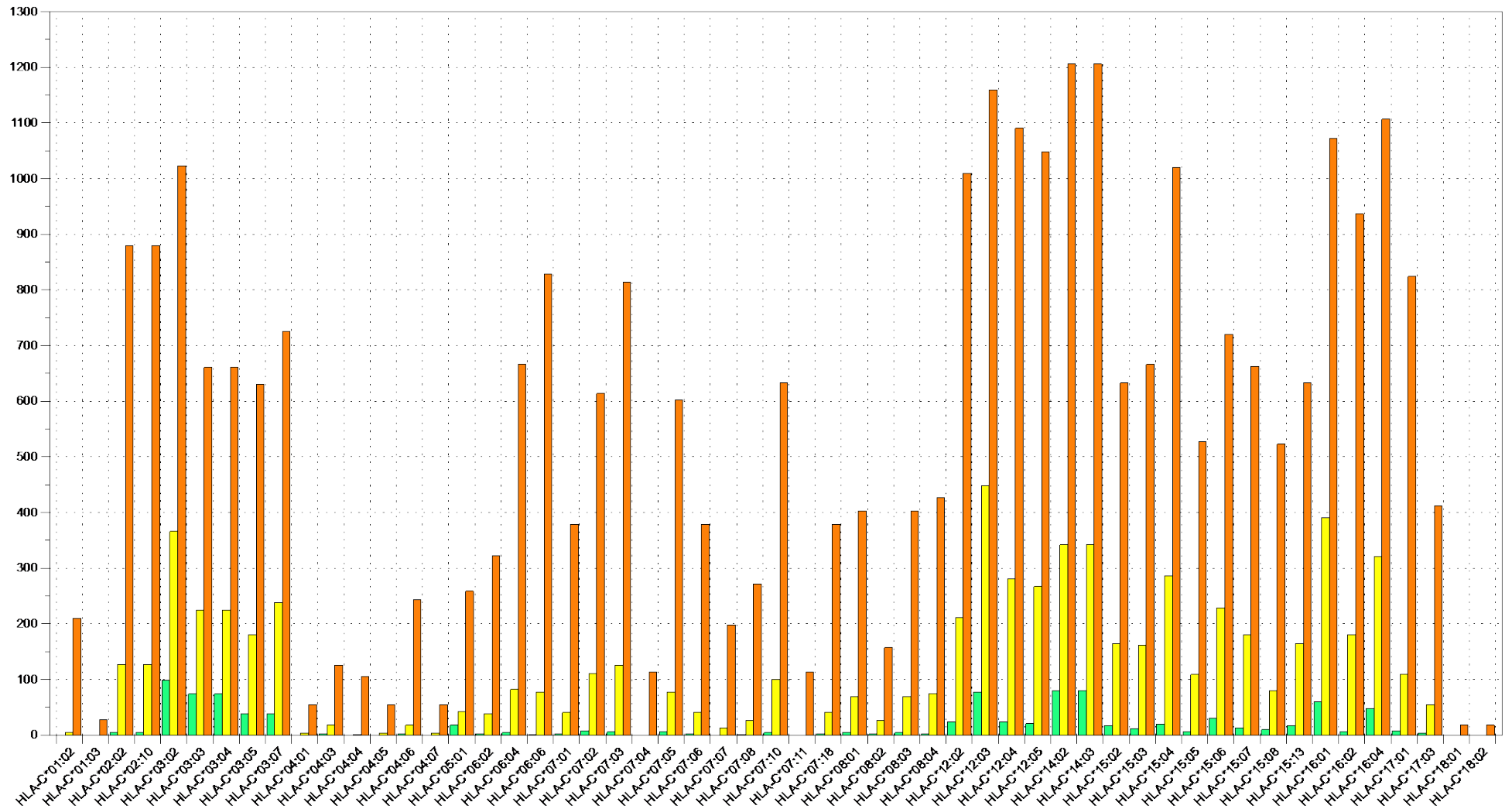
Alleles are ordered on the x-axis by their weak ( $500 \text{ nM} < IC_{50} \leq 5000 \text{ nM}$ ) binding prediction and the number of peptides presented are displayed on the y-axis.

## Total number of peptides with strong, regular and weak binding predictions for *HLA-C*

	<b>IC<sub>50</sub> ≤ 50 nM</b> Strong binders	<b>50 nM &lt; IC<sub>50</sub> ≤ 500 nM</b> Regular binders	<b>500 nM &lt; IC<sub>50</sub> ≤ 5000 nM</b> Weak binders	<b>IC<sub>50</sub> &gt; 5000 nM</b> Non binders
HLA-C*01:02	0	5	210	6874
HLA-C*01:03	0	0	28	7061
HLA-C*02:02	5	127	880	6077
HLA-C*02:10	5	127	880	6077
HLA-C*03:02	99	366	1023	5601
HLA-C*03:03	74	225	661	6129
HLA-C*03:04	74	225	661	6129
HLA-C*03:05	39	180	630	6240
HLA-C*03:07	39	238	726	6086
HLA-C*04:01	0	4	55	7030
HLA-C*04:03	3	18	126	6942
HLA-C*04:04	0	1	106	6982
HLA-C*04:05	0	4	55	7030
HLA-C*04:06	2	18	244	6825
HLA-C*04:07	0	4	55	7030
HLA-C*05:01	18	43	259	6769
HLA-C*06:02	3	39	322	6725
HLA-C*06:04	5	82	667	6335
HLA-C*06:06	1	78	829	6181
HLA-C*07:01	3	41	379	6666
HLA-C*07:02	8	111	614	6356
HLA-C*07:03	6	126	814	6143
HLA-C*07:04	0	0	113	6976
HLA-C*07:05	6	78	603	6402
HLA-C*07:06	3	41	379	6666
HLA-C*07:07	0	13	198	6878
HLA-C*07:08	1	26	272	6790
HLA-C*07:10	5	100	633	6351
HLA-C*07:11	0	0	113	6976
HLA-C*07:18	3	41	379	6666
HLA-C*08:01	5	70	403	6611
HLA-C*08:02	2	26	157	6904
HLA-C*08:03	5	70	403	6611
HLA-C*08:04	3	75	427	6584
HLA-C*12:02	24	211	1010	5844
HLA-C*12:03	77	448	1160	5404
HLA-C*12:04	24	281	1091	5693
HLA-C*12:05	21	267	1048	5753
HLA-C*14:02	80	342	1206	5461
HLA-C*14:03	80	342	1206	5461
HLA-C*15:02	17	164	633	6275
HLA-C*15:03	12	162	666	6249
HLA-C*15:04	20	286	1020	5763
HLA-C*15:05	6	109	528	6446
HLA-C*15:06	30	229	720	6110
HLA-C*15:07	13	181	663	6232
HLA-C*15:08	10	80	523	6476
HLA-C*15:13	17	164	633	6275
HLA-C*16:01	60	391	1073	5565
HLA-C*16:02	6	181	937	5965
HLA-C*16:04	48	321	1107	5613
HLA-C*17:01	8	110	824	6147
HLA-C*17:03	4	55	412	6618
HLA-C*18:01	0	0	18	7071
HLA-C*18:02	0	0	18	7071

Alleles are ordered alphabetically.

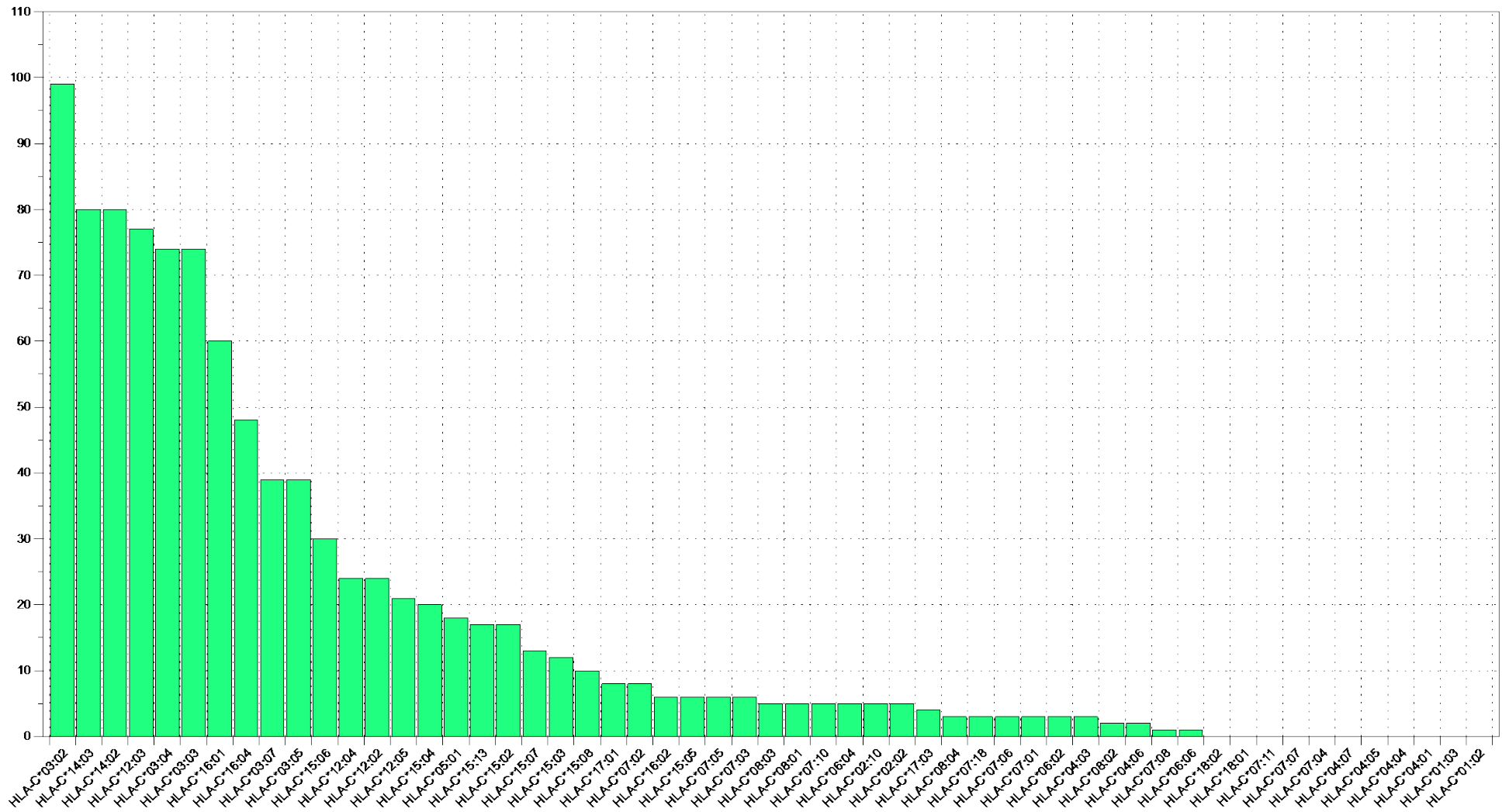
## General binding prediction tendencies for HLA-C



Alleles are ordered alphabetically on the x-axis, while the number of peptides binding with strong ( $IC_{50} \leq 50$  nM), regular ( $50$  nM  $< IC_{50} \leq 500$  nM) and weak ( $500$  nM  $< IC_{50} \leq 5000$  nM) binding prediction are displayed on the y-axis.

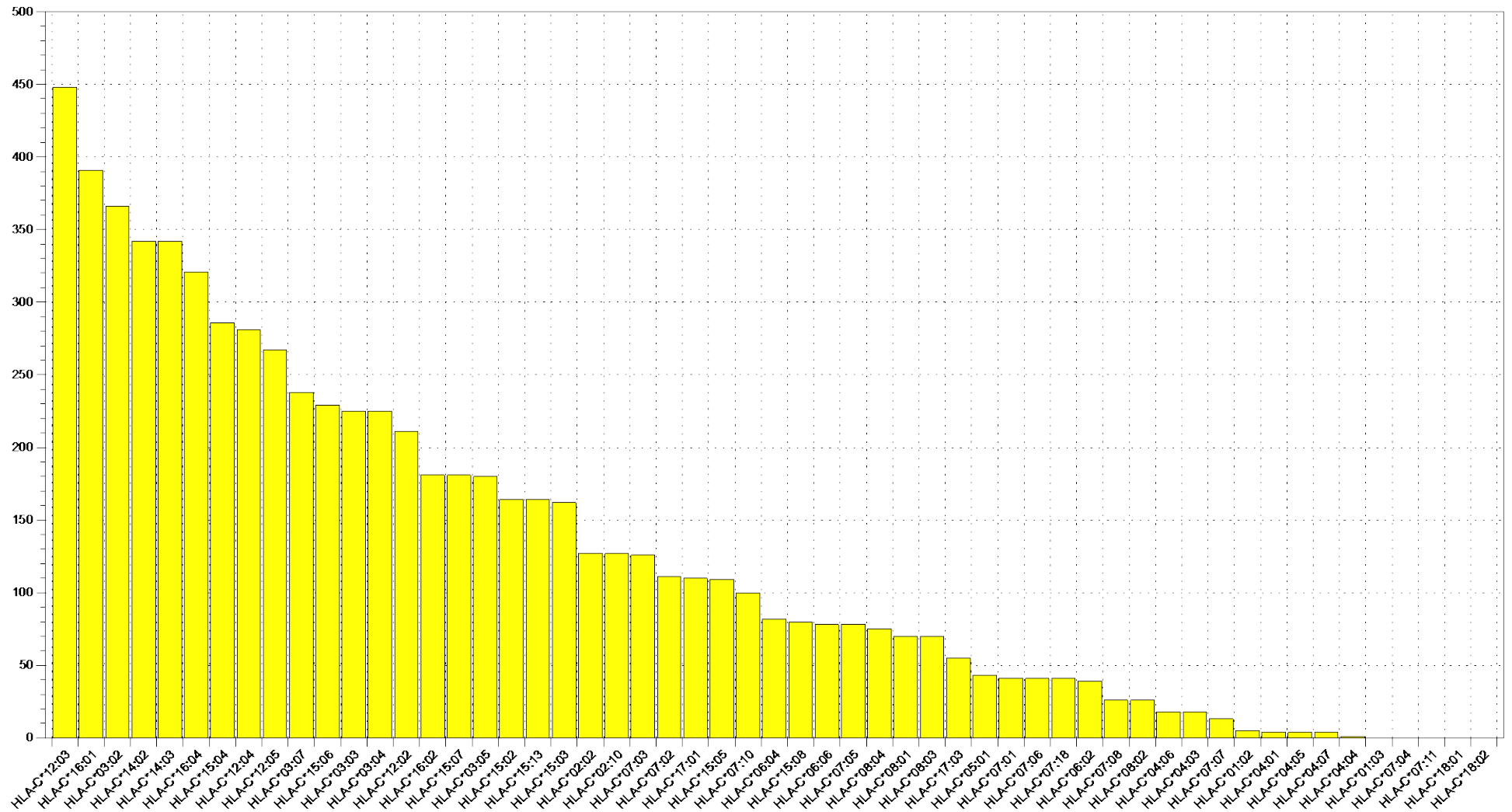


## HLA-C alleles ordered by number of presented peptides with strong binding prediction



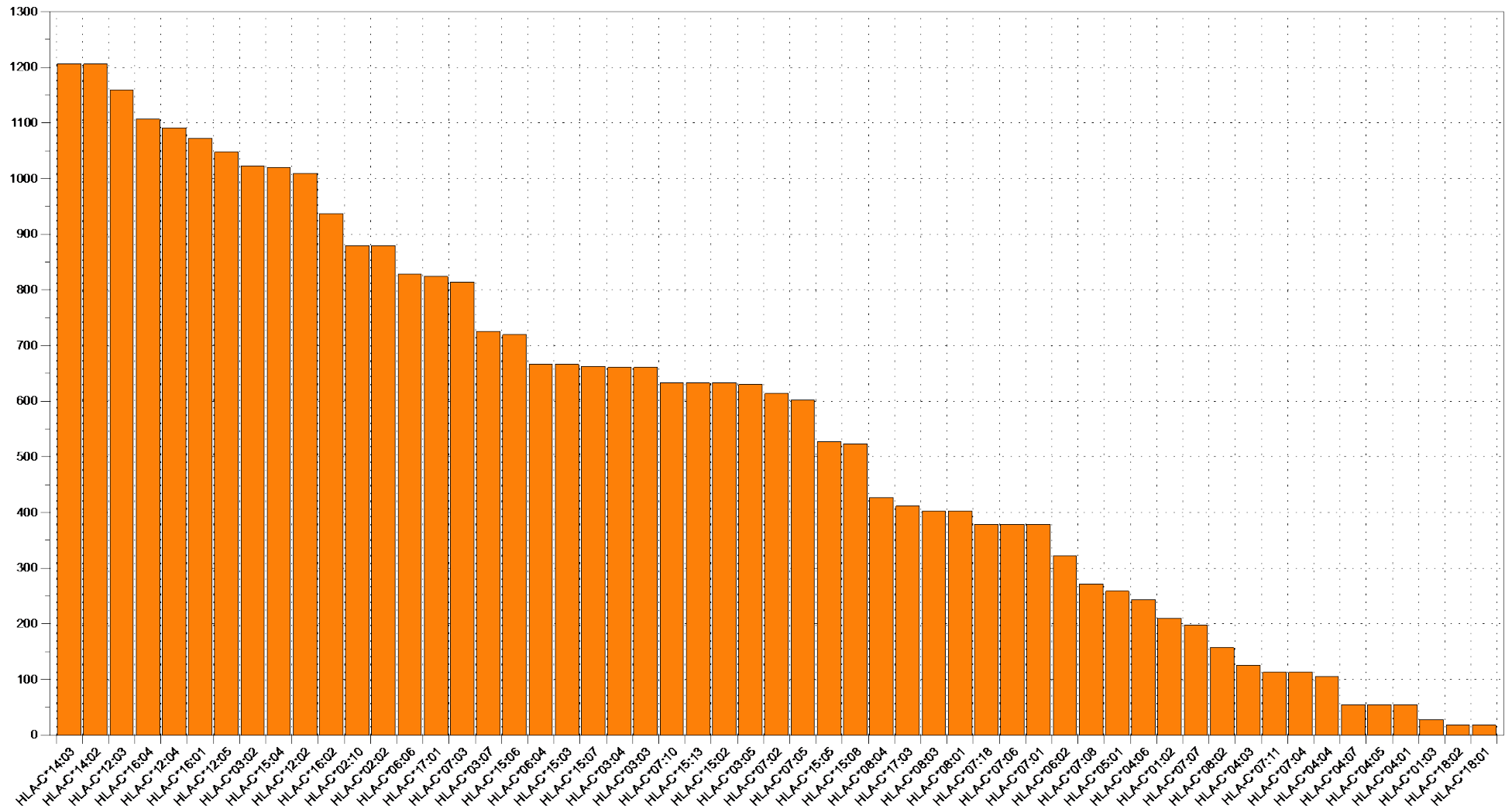
Alleles are ordered on the x-axis by their strong ( $IC_{50} \leq 50$  nM) binding prediction and the number of peptides presented are displayed on the y-axis.

## HLA-C alleles ordered by number of presented peptides with regular binding prediction



Alleles are ordered on the x-axis by their regular ( $50 \text{ nM} < IC_{50} \leq 500 \text{ nM}$ ) binding prediction and the number of peptides presented are displayed on the y-axis.

## HLA-C alleles ordered by number of presented peptides with weak binding prediction



Alleles are ordered on the x-axis by their weak ( $500 \text{ nM} < \text{IC}_{50} \leq 5000 \text{ nM}$ ) binding prediction and the number of peptides presented are displayed on the y-axis.

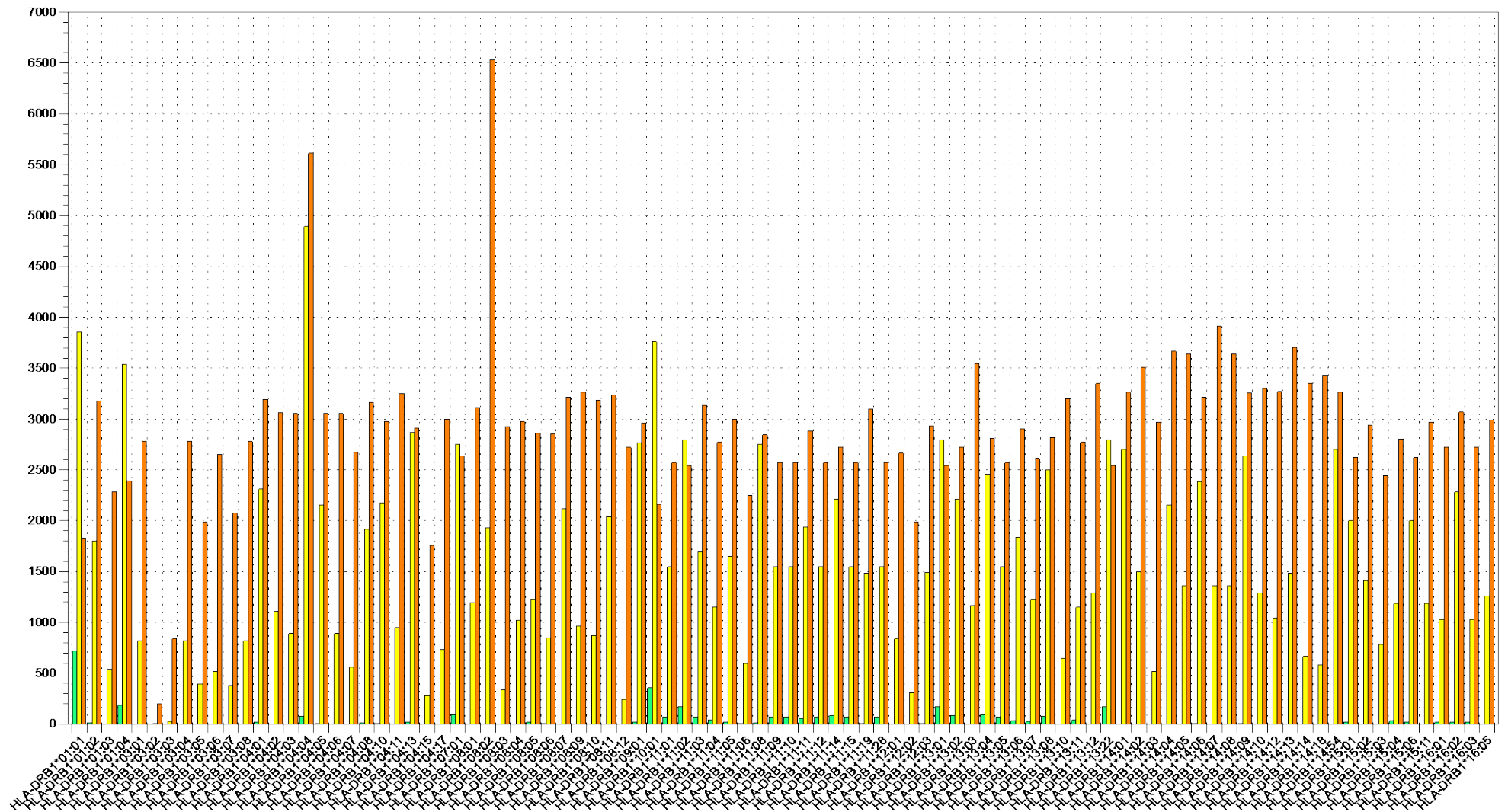
## Total number of peptides with strong, regular and weak binding predictions for *HLA-DRB1*

	<b>IC<sub>50</sub> ≤ 50 nM</b> Strong binders	<b>50 nM &lt; IC<sub>50</sub> ≤ 1000 nM</b> Regular binders	<b>1000 nM &lt; IC<sub>50</sub> ≤ 5000 nM</b> Weak binders	<b>IC<sub>50</sub> &gt; 5000 nM</b> Non binders
HLA-DRB1*01:01	719	3855	1827	683
HLA-DRB1*01:02	14	1799	3180	2091
HLA-DRB1*01:03	0	537	2284	4263
HLA-DRB1*01:04	185	3541	2389	969
HLA-DRB1*03:01	0	818	2779	3487
HLA-DRB1*03:02	0	2	197	6885
HLA-DRB1*03:03	0	28	841	6215
HLA-DRB1*03:04	0	818	2779	3487
HLA-DRB1*03:05	0	398	1987	4699
HLA-DRB1*03:06	0	518	2652	3914
HLA-DRB1*03:07	0	380	2073	4631
HLA-DRB1*03:08	0	818	2779	3487
HLA-DRB1*04:01	17	2311	3194	1562
HLA-DRB1*04:02	0	1105	3060	2919
HLA-DRB1*04:03	0	893	3052	3139
HLA-DRB1*04:04	78	4892	5614	-3500
HLA-DRB1*04:05	6	2152	3055	1871
HLA-DRB1*04:06	0	893	3052	3139
HLA-DRB1*04:07	0	564	2673	3847
HLA-DRB1*04:08	11	1917	3161	1995
HLA-DRB1*04:10	9	2178	2977	1920
HLA-DRB1*04:11	0	947	3252	2885
HLA-DRB1*04:13	23	2871	2915	1275
HLA-DRB1*04:15	1	281	1757	5045
HLA-DRB1*04:17	0	733	3000	3351
HLA-DRB1*07:01	91	2755	2639	1599
HLA-DRB1*08:01	1	1195	3113	2775
HLA-DRB1*08:02	0	966	3266	2852
HLA-DRB1*08:03	0	334	2924	3826
HLA-DRB1*08:04	0	1022	2973	3089
HLA-DRB1*08:05	18	1226	2862	2978
HLA-DRB1*08:06	4	852	2854	3374
HLA-DRB1*08:07	0	2119	3213	1752
HLA-DRB1*08:09	0	966	3266	2852
HLA-DRB1*08:10	0	874	3184	3026
HLA-DRB1*08:11	0	2042	3234	1808
HLA-DRB1*08:12	0	245	2721	4118
HLA-DRB1*09:01	23	2770	2963	1328
HLA-DRB1*10:01	358	3761	2164	801
HLA-DRB1*11:01	72	1547	2570	2895
HLA-DRB1*11:02	169	2800	2541	1574
HLA-DRB1*11:03	68	1689	3133	2194
HLA-DRB1*11:04	40	1151	2774	3119
HLA-DRB1*11:05	20	1651	2998	2415
HLA-DRB1*11:06	5	595	2251	4233
HLA-DRB1*11:08	13	2756	2846	1469
HLA-DRB1*11:09	72	1547	2570	2895
HLA-DRB1*11:10	72	1547	2570	2895
HLA-DRB1*11:11	56	1939	2886	2203
HLA-DRB1*11:12	72	1547	2570	2895
HLA-DRB1*11:14	82	2210	2725	2067
HLA-DRB1*11:15	72	1547	2570	2895
HLA-DRB1*11:19	3	1483	3100	2498
HLA-DRB1*11:28	72	1547	2570	2895
HLA-DRB1*12:01	0	839	2663	3582
HLA-DRB1*12:02	0	307	1989	4788
HLA-DRB1*12:03	6	1489	2935	2654
HLA-DRB1*13:01	169	2800	2541	1574
HLA-DRB1*13:02	82	2210	2725	2067
HLA-DRB1*13:03	0	1166	3547	2371
HLA-DRB1*13:04	92	2459	2809	1724
HLA-DRB1*13:05	72	1547	2570	2895

	<b>IC<sub>50</sub> ≤ 50 nM</b> <b>Strong binders</b>	<b>50 nM &lt; IC<sub>50</sub> ≤ 1000 nM</b> <b>Regular binders</b>	<b>1000 nM &lt; IC<sub>50</sub> ≤ 5000 nM</b> <b>Weak binders</b>	<b>IC<sub>50</sub> &gt; 5000 nM</b> <b>Non binders</b>
HLA-DRB1*13:06	32	1837	2902	2313
HLA-DRB1*13:07	29	1223	2613	3219
HLA-DRB1*13:08	77	2502	2816	1689
HLA-DRB1*13:10	0	645	3198	3241
HLA-DRB1*13:11	40	1151	2774	3119
HLA-DRB1*13:12	0	1288	3350	2446
HLA-DRB1*13:22	169	2800	2541	1574
HLA-DRB1*14:01	0	2700	3263	1121
HLA-DRB1*14:02	0	1498	3508	2078
HLA-DRB1*14:03	0	514	2966	3604
HLA-DRB1*14:04	0	2155	3667	1262
HLA-DRB1*14:05	0	1364	3640	2080
HLA-DRB1*14:06	5	2385	3214	1480
HLA-DRB1*14:07	0	1364	3917	1803
HLA-DRB1*14:08	0	1364	3640	2080
HLA-DRB1*14:09	5	2638	3259	1182
HLA-DRB1*14:10	0	1288	3304	2492
HLA-DRB1*14:12	0	1041	3269	2774
HLA-DRB1*14:13	0	1486	3704	1894
HLA-DRB1*14:14	0	667	3353	3064
HLA-DRB1*14:18	0	586	3433	3065
HLA-DRB1*14:54	0	2700	3263	1121
HLA-DRB1*15:01	19	2001	2621	2443
HLA-DRB1*15:02	0	1412	2943	2729
HLA-DRB1*15:03	0	781	2440	3863
HLA-DRB1*15:04	32	1187	2802	3063
HLA-DRB1*15:06	19	2001	2621	2443
HLA-DRB1*15:11	0	1189	2971	2924
HLA-DRB1*16:01	17	1033	2724	3310
HLA-DRB1*16:02	21	2281	3068	1714
HLA-DRB1*16:03	17	1033	2724	3310
HLA-DRB1*16:05	0	1264	2991	2829

Alleles are ordered alphabetically.

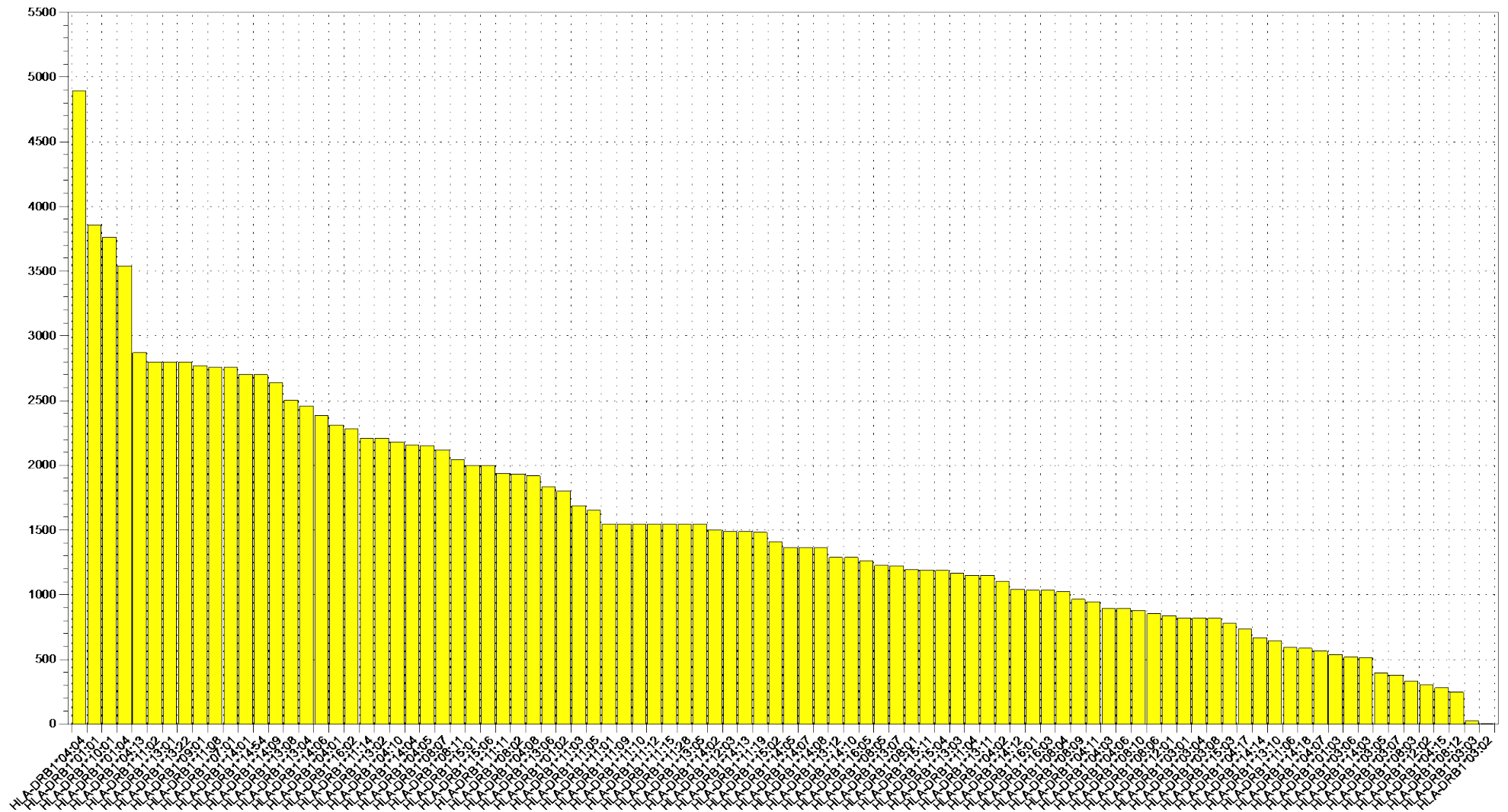
## General binding prediction tendencies for *HLA-DRB1*



Alleles are ordered alphabetically on the x-axis, while the number of peptides binding with strong ( $IC_{50} \leq 50$  nM), regular ( $50$  nM  $< IC_{50} \leq 1000$  nM) and weak ( $1000$  nM  $< IC_{50} \leq 5000$  nM) binding prediction are displayed on the y-axis.



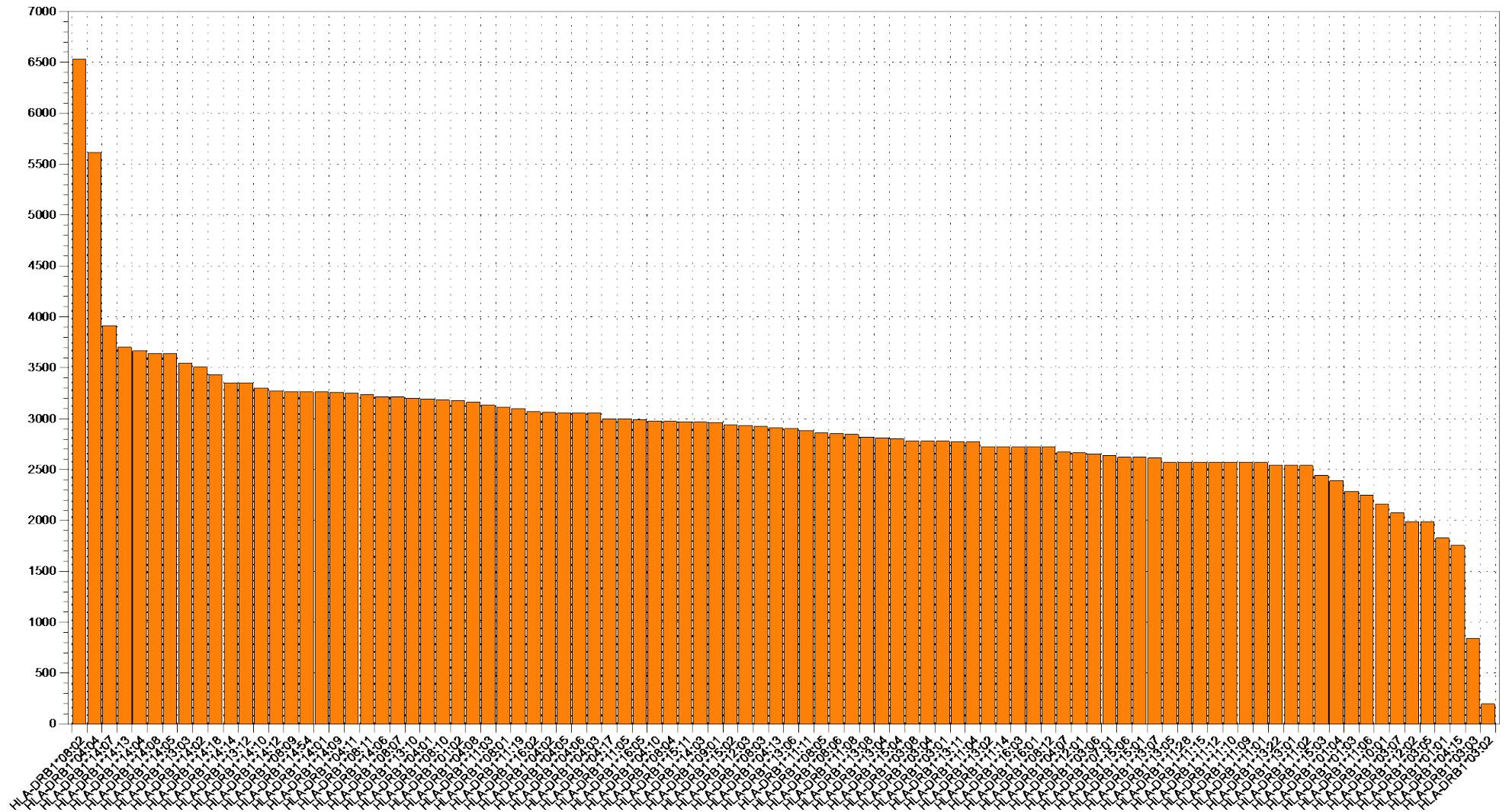
## HLA-DRB1 alleles ordered by number of presented peptides with regular binding prediction



Alleles are ordered on the x-axis by their regular ( $50 \text{ nM} < IC_{50} \leq 1000 \text{ nM}$ ) binding prediction and the number of peptides presented are displayed on the y-axis.



## HLA-DRB1 alleles ordered by number of presented peptides with weak binding prediction



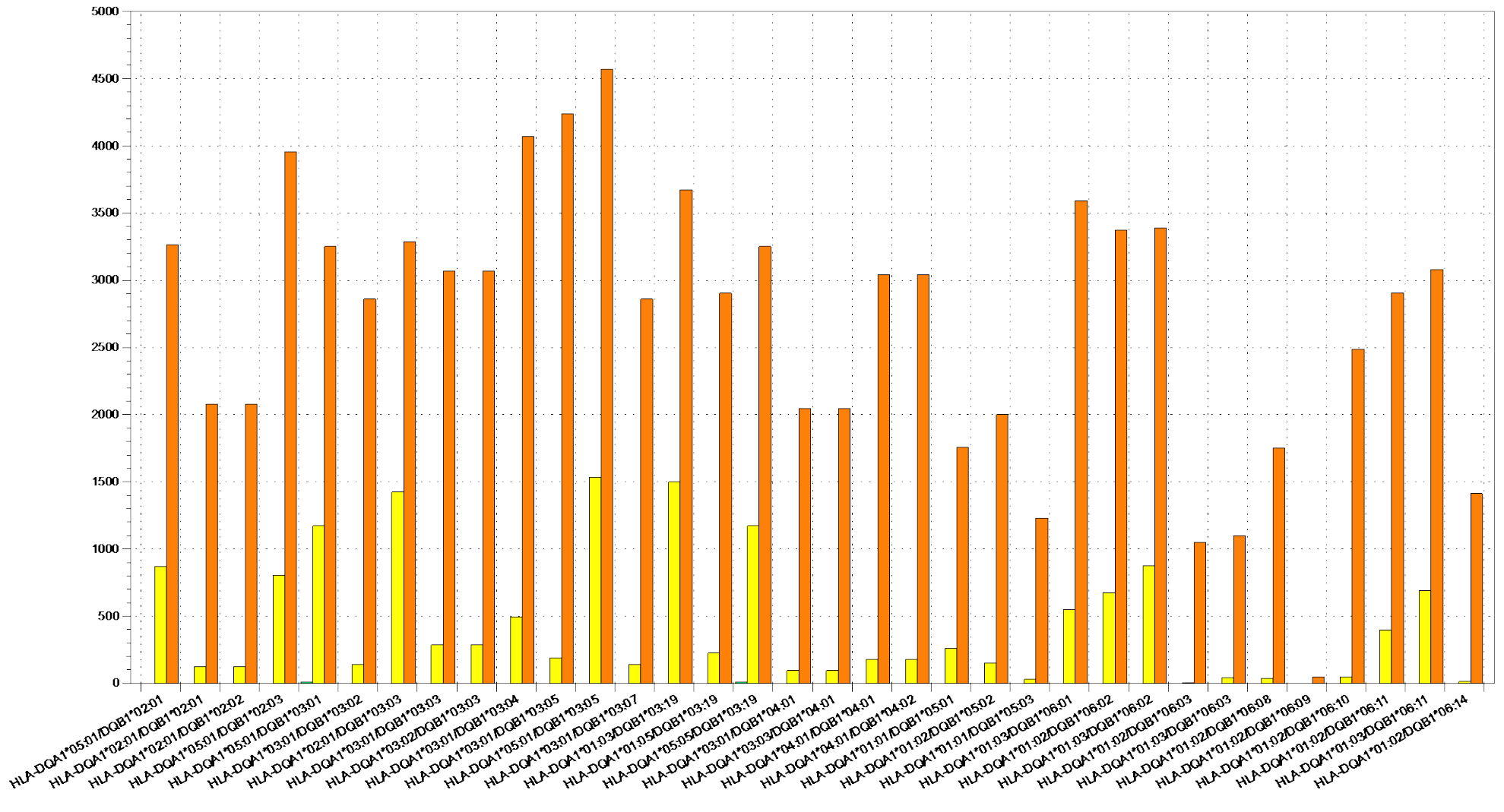
Alleles are ordered on the x-axis by their weak ( $1000 \text{ nM} < IC_{50} \leq 5000 \text{ nM}$ ) binding prediction and the number of peptides presented are displayed on the y-axis.

**Total number of peptides with strong, regular and weak binding predictions for *HLA-DQA1/-DQB1***

	<b>IC<sub>50</sub> ≤ 50 nM Strong binders</b>	<b>50 nM &lt; IC<sub>50</sub> ≤ 1000 nM Regular binders</b>	<b>1000 nM &lt; IC<sub>50</sub> ≤ 5000 nM Weak binders</b>	<b>IC<sub>50</sub> &gt; 5000 nM Non binders</b>
HLA-DQA1*05:01/DQB1*02:01	0	869	3267	2948
HLA-DQA1*02:01/DQB1*02:01	0	126	2077	4881
HLA-DQA1*02:01/DQB1*02:02	0	126	2077	4881
HLA-DQA1*05:01/DQB1*02:03	0	805	3958	2321
HLA-DQA1*05:01/DQB1*03:01	9	1172	3251	2652
HLA-DQA1*03:01/DQB1*03:02	0	142	2860	4082
HLA-DQA1*02:01/DQB1*03:03	0	1422	3288	2374
HLA-DQA1*03:01/DQB1*03:03	0	287	3070	3727
HLA-DQA1*03:02/DQB1*03:03	0	287	3070	3727
HLA-DQA1*03:01/DQB1*03:04	0	496	4068	2520
HLA-DQA1*03:01/DQB1*03:05	0	191	4239	2654
HLA-DQA1*05:01/DQB1*03:05	0	1536	4572	976
HLA-DQA1*03:01/DQB1*03:07	0	142	2860	4082
HLA-DQA1*01:03/DQB1*03:19	0	1499	3674	1911
HLA-DQA1*01:05/DQB1*03:19	0	227	2904	3953
HLA-DQA1*05:05/DQB1*03:19	9	1172	3251	2652
HLA-DQA1*03:01/DQB1*04:01	0	95	2047	4942
HLA-DQA1*03:03/DQB1*04:01	0	95	2047	4942
HLA-DQA1*04:01/DQB1*04:01	0	181	3043	3860
HLA-DQA1*04:01/DQB1*04:02	0	181	3043	3860
HLA-DQA1*01:01/DQB1*05:01	0	262	1756	5066
HLA-DQA1*01:02/DQB1*05:02	0	149	2000	4935
HLA-DQA1*01:01/DQB1*05:03	0	30	1232	5822
HLA-DQA1*01:03/DQB1*06:01	0	550	3593	2941
HLA-DQA1*01:02/DQB1*06:02	0	676	3375	3033
HLA-DQA1*01:03/DQB1*06:02	0	877	3388	2819
HLA-DQA1*01:02/DQB1*06:03	0	7	1051	6026
HLA-DQA1*01:03/DQB1*06:03	0	43	1099	5942
HLA-DQA1*01:02/DQB1*06:08	0	36	1750	5298
HLA-DQA1*01:02/DQB1*06:09	0	0	50	7034
HLA-DQA1*01:02/DQB1*06:10	0	50	2487	4547
HLA-DQA1*01:02/DQB1*06:11	0	397	2906	3781
HLA-DQA1*01:03/DQB1*06:11	0	690	3080	3314
HLA-DQA1*01:02/DQB1*06:14	0	15	1412	5657

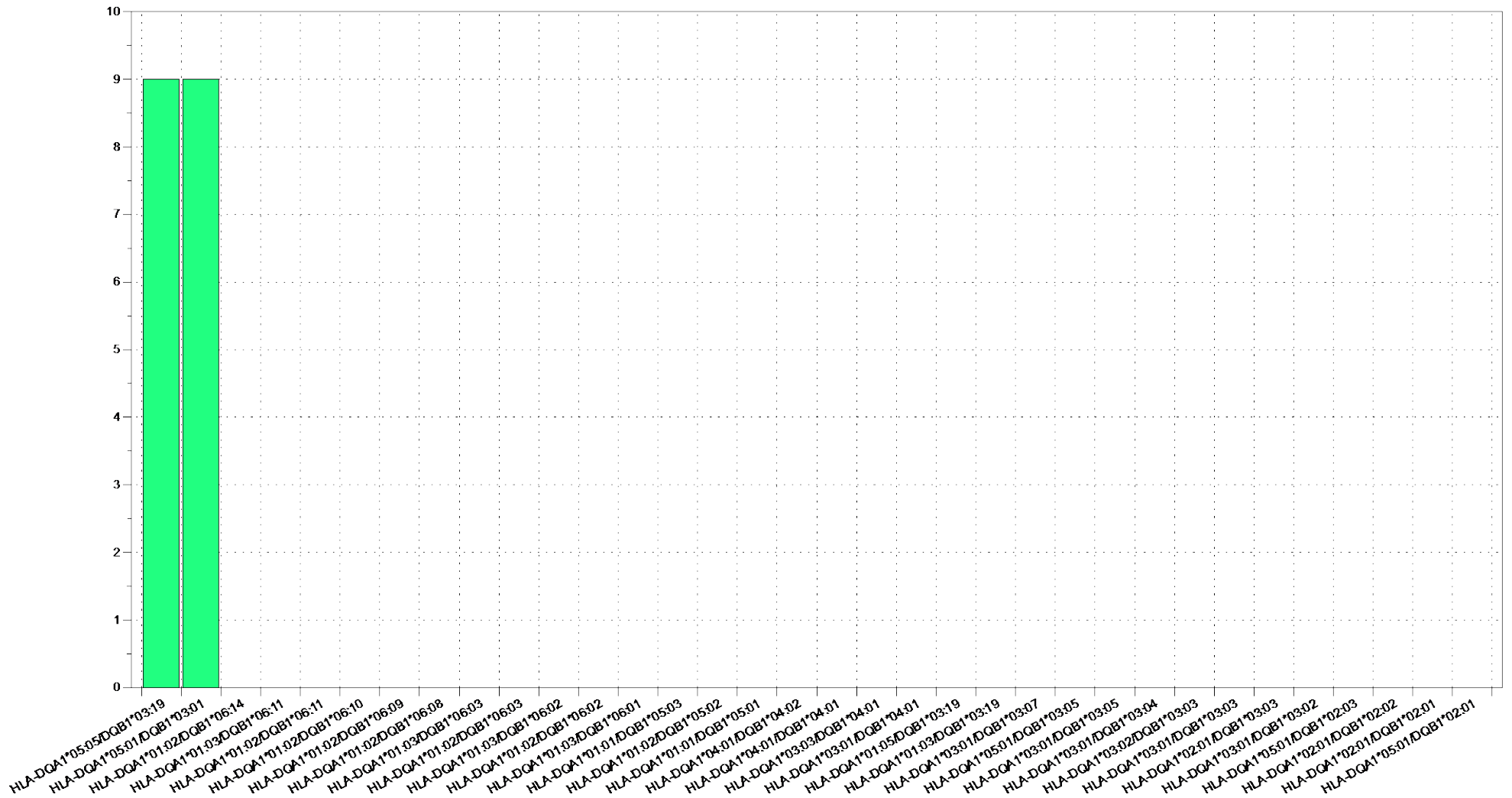
Allele combinations are ordered alphabetically.

## General binding prediction tendencies for *HLA-DQA1/DQB1*



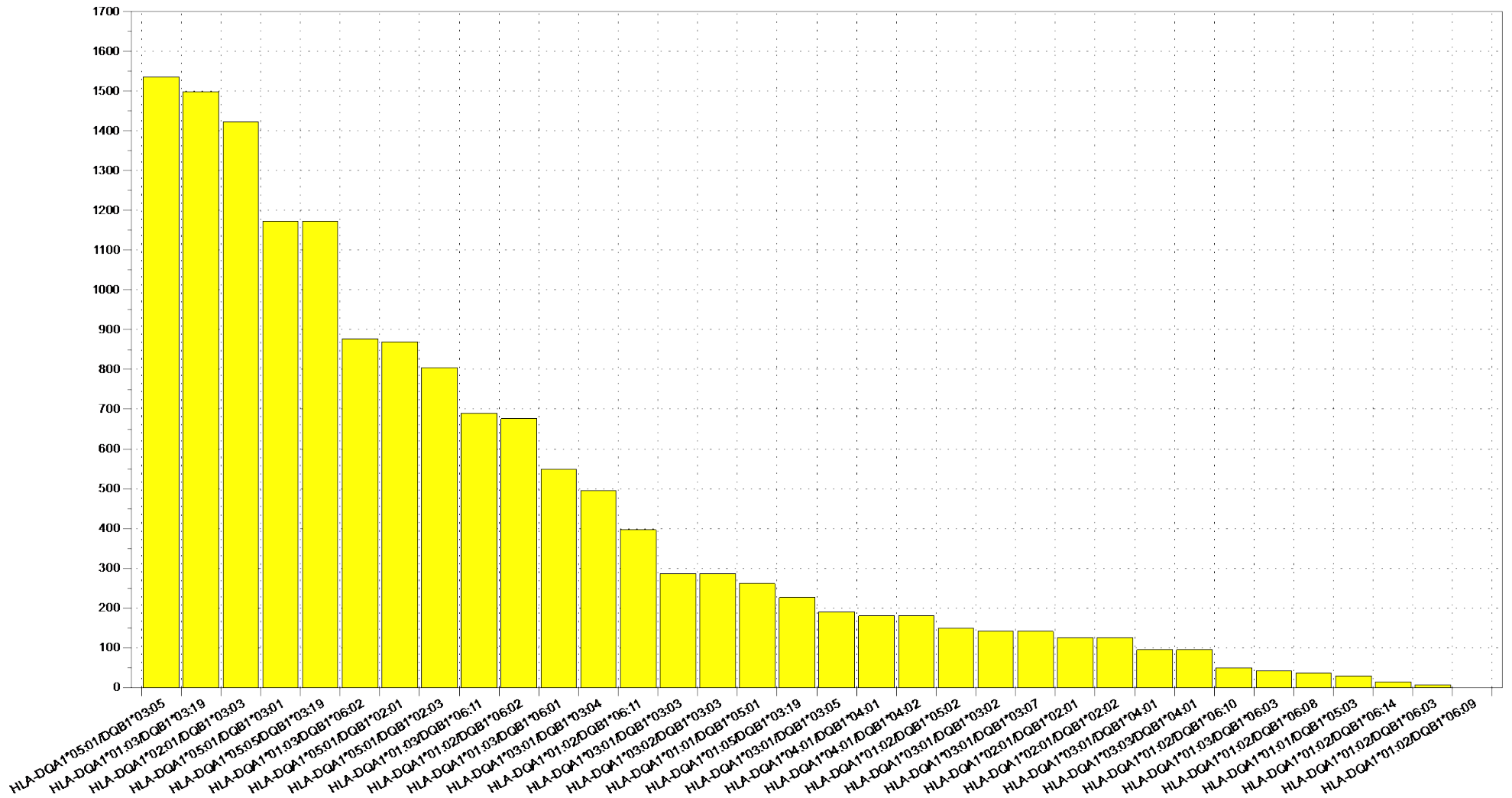
Allele combinations are ordered alphabetically on the x-axis, while the number of peptides binding with strong ( $IC_{50} \leq 50$  nM), regular ( $50$  nM  $< IC_{50} \leq 1000$  nM) and weak ( $1000$  nM  $< IC_{50} \leq 5000$  nM) binding prediction are displayed on the y-axis.

## HLA-DQA1/-DQB1 alleles ordered by number of presented peptides with strong binding prediction



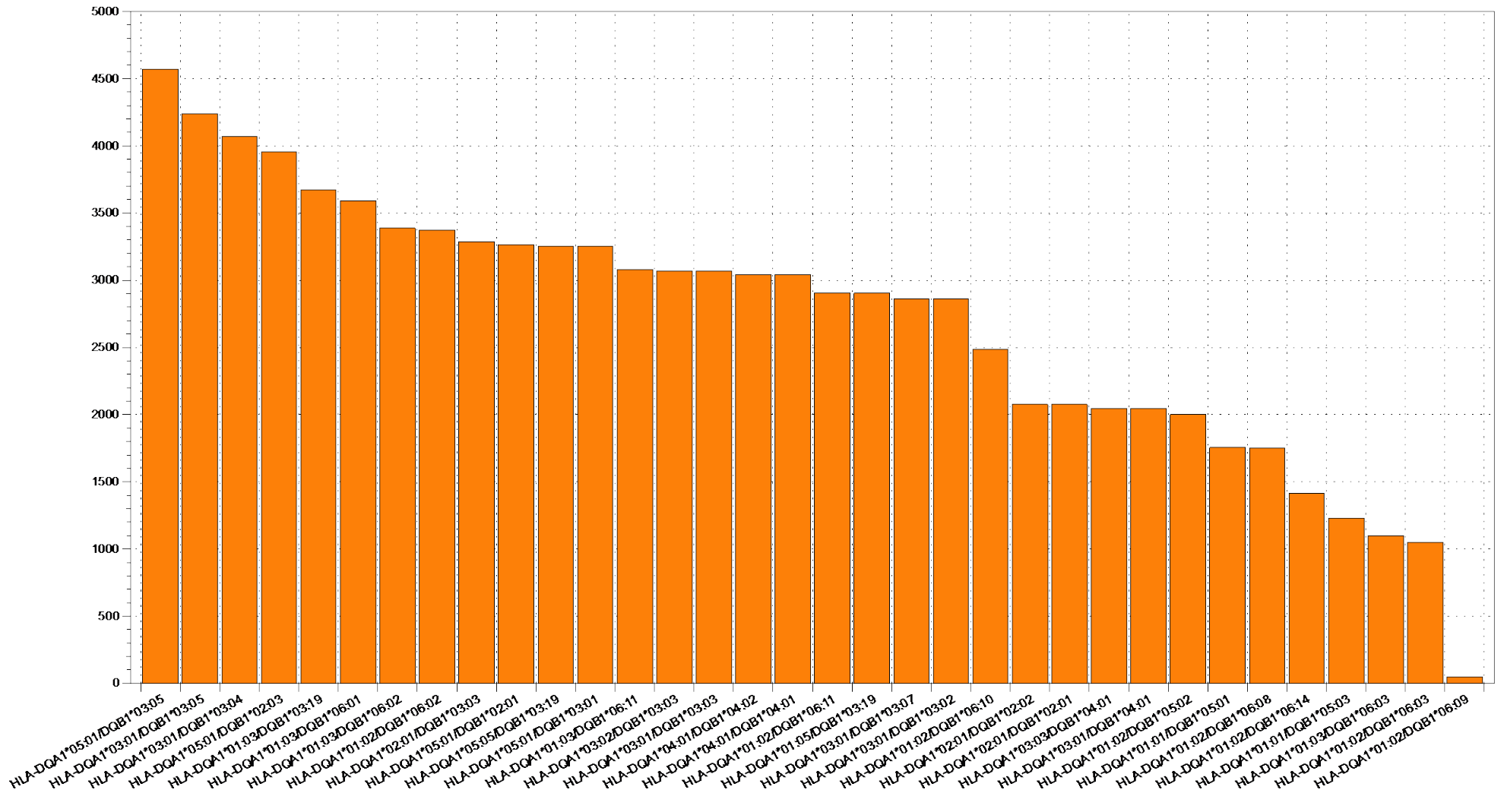
Allele combinations are ordered on the x-axis by their strong (IC<sub>50</sub> ≤ 50 nM) binding prediction and the number of peptides presented are displayed on the y-axis.

## HLA-DQA1/-DQB1 alleles ordered by number of presented peptides with regular binding prediction



Allele combinations are ordered on the x-axis by their regular (50 nM < IC<sub>50</sub> ≤ 1000 nM) binding prediction and the number of peptides presented are displayed on the y-axis.

## HLA-DQA1/DQB1 alleles ordered by number of presented peptides with weak binding prediction



Allele combinations are ordered on the x-axis by their weak ( $1000 \text{ nM} < IC_{50} \leq 5000 \text{ nM}$ ) binding prediction and the number of peptides presented are displayed on the y-axis.