Supplementary Material
Correlation matrices on FP and FN profiles

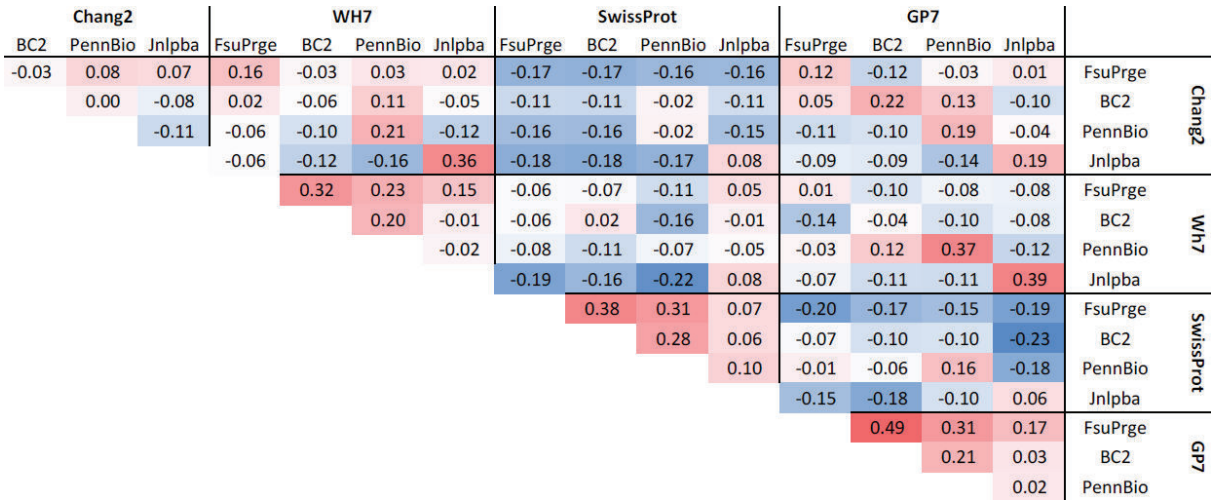
The following two tables give the correlation coefficients for the FP profiles and the FN profiles of a single tagging solutions against a selected GSC (using cos98 evaluation).

- Fig. 8: Correlation matrix for the FN errors.
- Fig. 9: Correlation matrix for the FP errors.

FsuPrge			BC2				PennBio				Jnlpba				
Wh7	SwissProt	GP7	Chang2	WH7	SwissProt	GP7	Chang2	WH7	SwissProt	GP7	Chang2	WH7	SwissProt	GP7	
0.35	0.20	0.02	-0.07	-0.15	-0.14	-0.11	-0.01	-0.12	-0.12	-0.13	0.09	-0.03	-0.05	-0.15	Chang2
	0.40	0.12	-0.17	0.03	-0.01	-0.20	-0.08	-0.15	-0.11	-0.15	-0.03	0.03	-0.13	-0.20	Wh7
		0.04	-0.17	-0.02	0.18	-0.13	-0.13	-0.09	-0.10	-0.13	-0.14	0.00	-0.02	-0.14	SwissProt
			-0.11	0.03	-0.05	0.05	-0.13	-0.13	-0.13	0.05	-0.09	-0.15	0.03	-0.07	GP7
				0.10	0.06	0.28	-0.08	-0.16	-0.15	-0.11	-0.13	-0.16	-0.15	-0.12	Chang2
					0.34	0.21	-0.14	-0.18	-0.11	-0.04	-0.15	0.04	-0.07	-0.15	WH7
						0.10	-0.17	-0.18	-0.08	-0.12	-0.18	-0.05	-0.11	-0.18	SwissProt
							-0.11	-0.16	-0.11	-0.07	-0.16	-0.20	0.00	-0.08	GP7
								0.52	0.34	0.34	0.01	-0.09	-0.09	-0.14	Chang2
									0.63	0.39	-0.19	-0.24	-0.19	-0.19	WH7
										0.33	-0.09	-0.23	-0.07	-0.17	SwissProt
											-0.14	-0.15	-0.09	-0.13	GP7
												0.31	0.24	0.35	Chang2
													0.33	0.21	WH7
														0.29	SwissProt

FsuPrge | BC2 | PennBio | Jnlpba

Figure 8: **(Correlation matrix for FN profiles):** The matrix shows the pair-wise correlation of the FN error profiles from the different tagging experiments. Each listed PGN tagging solution has been tested on the available gold standard corpora and the FN results from the experiment each tagger-corpus pair have been collected, normalized and then compared. The highest correlation values are given for different PGN taggers against the same corpora.



	Chang2			WH7			SwissProt				GP7					
BC2	PennBio	Jnlpba	FsuPrge	BC2	PennBio	Jnlpba	FsuPrge	BC2	PennBio	Jnlpba	FsuPrge	BC2	PennBio	Jnlpba		
-0.03	0.08	0.07	0.16	-0.03	0.03	0.02	-0.17	-0.17	-0.16	-0.16	0.12	-0.12	-0.03	0.01	FsuPrge	Chang2
	0.00	-0.08	0.02	-0.06	0.11	-0.05	-0.11	-0.11	-0.02	-0.11	0.05	0.22	0.13	-0.10	BC2	
		-0.11	-0.06	-0.10	0.21	-0.12	-0.16	-0.16	-0.02	-0.15	-0.11	-0.10	0.19	-0.04	PennBio	
			-0.06	-0.12	-0.16	0.36	-0.18	-0.18	-0.17	0.08	-0.09	-0.09	-0.14	0.19	Jnlpba	
				0.32	0.23	0.15	-0.06	-0.07	-0.11	0.05	0.01	-0.10	-0.08	-0.08	FsuPrge	Wh7
					0.20	-0.01	-0.06	0.02	-0.16	-0.01	-0.14	-0.04	-0.10	-0.08	BC2	
						-0.02	-0.08	-0.11	-0.07	-0.05	-0.03	0.12	0.37	-0.12	PennBio	
							-0.19	-0.16	-0.22	0.08	-0.07	-0.11	-0.11	0.39	Jnlpba	
								0.38	0.31	0.07	-0.20	-0.17	-0.15	-0.19	FsuPrge	SwissProt
									0.28	0.06	-0.07	-0.10	-0.10	-0.23	BC2	
										0.10	-0.01	-0.06	0.16	-0.18	PennBio	
											-0.15	-0.18	-0.10	0.06	Jnlpba	
												0.49	0.31	0.17	FsuPrge	GP7
													0.21	0.03	BC2	
														0.02	PennBio	

Figure 9: **(Correlation matrix for FP profiles):** The matrix has been generated in the same way as the correlation matrix in fig. 8, but it now contains the FP error profiles. The table is sorted according to the tagging solutions and the correlation between two tagger-corpus pairs tends to be positive, if the same tagger has been applied to two different corpora.

Tables for FP and FN errors

The following tables list the most frequent FP and FN errors for selected tagging solutions.

- Fig. 10: FN results using exact matching.
- Fig. 11: FP results using exact matching.
- Fig. 12: FN results using cos98 matching.
- Fig. 13: FP results using cos98 matching.

		FN - FsuPrge	FN - PennBio	FN - BC2	FN - Jnlpba
exact	Chang2	312|KIR, 278|cytokine, 215|cytokines, 203|kinase, 176|transcription factor, 165|transcription factors, 105|RNA polymerase, 74|protease, 71|APP, 65|HDL	586|K-ras, 385|ras, 329|p53, 303|beta-catenin, 277|polymerase, 252|N-ras, 200|MYCN, 187|N-myc, 115|c-kit, 100|APC	8|neu, 5|GTPase-activating protein, 5|CREM, 5|LH, 5|chloramphenicol acetyltransferase, 4|CBF, 4|Ras, 4|E2, 4|CH, 4|Lp	39|cytokines, 27|transcription factors, 16|glucocorticoid receptor, 15|GR, 14|cytokine, 13|glucocorticoid receptors, 11|antibodies, 11|LTR, 11|proteasome, 10|Glucocorticoid receptors
	Wh7	278|cytokine, 233|KIR, 215|cytokines, 141|kinase, 131|transcription factors, 119|transcription factor, 108|Tat, 105|IL-1, 103|IL-12, 98|CD8	450|N-myc, 404|N-ras, 273|polymerase, 157|c-kit, 136|MYCN, 81|VIP, 77|K-ras, 55|KIT, 53|N-RAS, 51|p73	20|CAT, 15|IgG, 12|c-Jun, 11|IgM, 10|IgA, 10|PU, 9|GH, 9|LH, 9|PI 3-kinase, 9|neu	69|NF-kappa B, 46|GR, 39|cytokines, 35|Tax, 27|IL-2 promoter, 26|transcription factors, 17|IL-12, 15|nuclear factor-kappaB, 15|ER, 15|AP-1 site
	SP	278|cytokine, 215|cytokines, 203|kinase, 188|NF-kappaB, 176|transcription factor, 172|RNA polymerase, 165|transcription factors, 108|Tat, 105|IL-1, 103|IL-12	902|K-ras, 450|N-myc, 404|N-ras, 277|polymerase, 181|H-ras, 81|VIP, 63|Wnt, 53|N-RAS, 46|c-fos, 38|kinase	15|IgG, 12|c-Jun, 11|IgM, 10|IgA, 10|PU, 9|E2, 9|GH, 9|LH, 9|RXR, 9|PI 3-kinase	86|NF-kappaB, 69|NF-kappa B, 46|GR, 39|cytokines, 35|Tax, 27|IL-2 promoter, 27|transcription factors, 17|IL-12, 15|nuclear factor-kappaB, 15|ER
	GP7	108|Tat, 71|Ig, 66|AR, 64|LDL, 47|sigmaK, 44|transcription factor, 40|sigma B, 40|SF-1, 38|gag, 36|sigma K	124|K-ras, 98|ras, 81|VIP, 69|p53, 52|N-myc, 47|beta-catenin, 41|N-ras, 28|T3, 25|N, 24|telomerase	9|GH, 9|LH, 8|SH3, 7|SH2 domains, 6|Tat, 6|gag, 6|TCR, 5|NF-Y, 5|Rb, 4|Tax	46|GR, 35|Tax, 27|IL-2 promoter, 15|ER, 15|AP-1 site, 14|TCR, 12|IL-2 gene, 12|Gadd45gamma, 11|antibodies, 11|LTR

Table 10: **FN tagging errors (exact)** The table gives an overview on the most frequent errors that occurred when applying the tagger against the corpus. The evaluation is based on exact matching.

		FP - FsuPrge	FP - PennBio	FP - BC2	FP - Jnlpba
exact	Chang2	35|p38, 34|KIR genes, 28|Ras, 25|SH2, 22|CK, 21|reverse transcriptase, 21|ARF, 20|HLA, 20|HDL-C, 20|TNF	155|beta-catenin gene, 120|K-ras gene, 117|ras, 107|p53 gene, 97|ras gene, 95|K-ras mutation, 82|N-ras gene, 68|N-myc gene, 66|ras genes, 49|K-ras mutations	4|C2, 4|CAT, 3|ferritin, 3|C1, 3|growth factor, 3|insulin, 3|Ras, 3|SH2, 2|T1N1, 2|ras	45|NF-kappaB, 39|CD4, 34|IL-2, 32|NF-kappa B, 25|AP-1, 20|IL-4, 20|p65, 18|CD3, 18|CD8, 18|CD28
	Wh7	304|kinase, 155|HLA, 128|Jun, 121|class I, 109|IFN, 86|growth factor, 81|antigen, 69|collagen, 67|TNF, 66|SH2	448|ras, 431|myc, 61|RAS, 53|fos, 39|N-myc oncogene, 38|Ha-ras, 37|kinase, 36|class I, 33|growth factor, 30|PrP	59|kinase, 26|Jun, 20|transcription factor, 17|antigen, 17|SH2, 15|Sp1, 12|EGF, 12|growth factor, 12|binding protein, 12|fos	100|CD4, 99|IL-2, 62|NF-kappaB, 56|AP-1, 44|kinase, 37|Rel, 36|CD28, 34|p65, 29|IL-4, 27|CREB
	SP	325|PCR, 152|a protein, 134|cyclin, 128|Jun, 99|phosphatase, 98|ORF, 98|Ca2, 94|Ras, 92|IFN, 90|tumor necrosis factor	1552|ras, 471|myc, 359|PCR, 81|Ca2, 63|RAS, 62|AMP, 62|HCC, 56|fos, 56|cyclin, 55|GGT	33|cis, 26|Jun, 25|PCR, 21|a protein, 19|ORF, 18|cyclin, 17|SH2, 15|Sp1, 13|Asp, 13|EBP	100|CD4, 89|IL-2, 57|AP-1, 38|p65, 38|Rel, 37|CD28, 36|Th1, 31|EBP, 29|IL-4, 27|CREB
	GP7	1234|has, 940|mRNA, 725|receptor, 569|in vitro, 460|enzyme, 431|RNA, 431|cDNA, 417|Escherichia coli, 393|receptors, 388|conserved	442|has, 406|mRNA, 360|PCR, 326|neuronal, 270|pancreatic, 232|receptor, 163|ras, 157|apoptosis, 152|oncogene, 140|cDNA	166|has, 95|cDNA, 75|serum, 74|RNA, 69|conserved, 67|mRNA, 61|in vitro, 60|plasma, 51|receptor, 46|kinase	213|lymphocytes, 190|receptor, 113|has, 106|mRNA, 105|in vitro, 98|IL-2, 97|CD4, 89|apoptosis, 77|receptors, 74|lymphoid

Table 11: **FP tagging errors (exact)** Similar to the previous table (cf. tbl. 10), this table shows the FP errors of the tagging solutions against the corpora. Again, exact matching has been used as evaluation measure.

		FN - FsuPrge	FN - PennBio	FN - BC2	FN - Jnlpba
cos98	Ch2	278|cytokine, 242|KIR, 215|cytokines, 203|kinase, 176|transcription factor, 165|transcription factors, 75|RNA polymerase, 74|protease, 60|APP, 59|p53	385|ras, 329|p53, 277|polymerase, 266|beta-catenin, 204|K-ras, 148|MYCN, 115|c-kit, 55|KIT, 41|N-myc, 40|c-myc	8|neu, 5|LH, 5|chloramphenicol acetyltransferase, 4|CBF, 4|CREM, 4|CH, 4|prolactin, 3|D, 3|V, 3|S	39|cytokines, 27|transcription factors, 16|glucocorticoid receptor, 15|GR, 14|cytokine, 13|glucocorticoid receptors, 11|proteasome, 11|antibodies, 11|LTR, 10|Glucocorticoid receptors
	Wh7	278|cytokine, 233|KIR, 215|cytokines, 141|kinase, 131|transcription factors, 119|transcription factor, 105|IL-1, 103|IL-12, 98|CD8, 94|HDL	404|N-ras, 403|N-myc, 273|polymerase, 157|c-kit, 136|MYCN, 81|VIP, 66|K-ras, 53|N-RAS, 51|p73, 50|KIT	20|CAT, 15|IgG, 11|IgM, 10|IgA, 9|neu, 9|PU, 9|NF-kappa B, 9|GH, 9|LH, 9|E1A	69|NF-kappa B, 46|GR, 39|cytokines, 35|Tax, 26|transcription factors, 17|IL-12, 15|nuclear factor-kappaB, 15|ER, 14|TCR, 14|cytokine
	SP	278|cytokine, 215|cytokines, 203|kinase, 188|NF-kappaB, 176|transcription factor, 171|RNA polymerase, 165|transcription factors, 106|Tat, 105|IL-1, 103|IL-12	902|K-ras, 450|N-myc, 404|N-ras, 277|polymerase, 181|H-ras, 81|VIP, 63|Wnt, 53|N-RAS, 46|c-fos, 38|kinase	15|IgG, 11|IgM, 10|IgA, 9|PU, 9|NF-kappa B, 9|GH, 9|LH, 9|MAP kinase, 9|E1A, 9|NF-kappaB	86|NF-kappaB, 69|NF-kappa B, 46|GR, 39|cytokines, 35|Tax, 27|transcription factors, 17|IL-12, 15|nuclear factor-kappaB, 15|ER, 14|TCR
	GP7	92|Tat, 70|Ig, 65|AR, 64|LDL, 47|sigmaK, 44|transcription factor, 40|SF-1, 39|sigma B, 38|gag, 36|sigma K	98|ras, 75|VIP, 69|p53, 28|T3, 24|telomerase, 21|N-MYC, 20|TH, 19|MK, 18|k-ras, 16|CRE	9|GH, 9|LH, 8|SH3, 6|Tat, 6|gag, 6|TCR, 5|NF-Y, 5|Rb, 4|Tax, 4|SH3 domains	46|GR, 35|Tax, 15|ER, 14|TCR, 12|Gadd45gamma, 11|antibodies, 11|LTR, 10|Cot kinase, 9|GRbeta, 9|IL-18Ralpha

Table 12: **FN tagging errors (cos98)** This table lists the FN errors for the tagging solutions against the gold standard corpora (based on cos98 matching).

		FP - FsuPrge	FP - PennBio	FP - BC2	FP - Jnlpba
cos98	Ch2	35|p38, 28|Ras, 25|SH2, 22|CK, 21|reverse transcriptase, 20|HDL-C, 19|pp60, 18|HLA, 16|phox, 16|MHC	155|beta-catenin gene, 117|ras, 107|p53 gene, 97|ras gene, 66|ras genes, 43|ras oncogenes, 33|p53 protein, 27|c-kit gene, 26|p53 mutations, 24|ras oncogene	3|ferritin, 3|C1, 3|C2, 3|CAT, 3|growth factor, 3|insulin, 3|Ras, 2|T1N1, 2|ras, 2|OD1	38|CD4, 38|NF-kappaB, 32|IL-2, 23|NF-kappa B, 22|AP-1, 20|p65, 18|CD8, 16|p50, 16|TCR, 15|IL-4
	Wh7	304|kinase, 153|HLA, 113|class I, 86|growth factor, 81|antigen, 69|collagen, 63|class II, 63|binding protein, 62|SH2, 59|Jun	448|ras, 431|myc, 60|RAS, 53|fos, 37|kinase, 33|growth factor, 29|antigen, 27|class I, 24|Myc, 23|MYC	59|kinase, 20|transcription factor, 17|antigen, 12|growth factor, 12|binding protein, 12|fos, 11|prolactin, 11|p53, 10|class I, 10|cyclin	87|CD4, 44|kinase, 42|NF-kappaB, 41|IL-2, 34|p65, 28|AP-1, 25|p50, 25|transcription factor, 24|IL-4, 23|CD28
	SP	325|PCR, 152|a protein, 133|cyclin, 99|phosphatase, 98|ORF, 90|tumor necrosis factor, 89|cis, 88|Ca2, 86|Asp, 81|embryonic	1552|ras, 471|myc, 359|PCR, 80|Ca2, 62|RAS, 62|HCC, 56|fos, 56|cyclin, 55|cis, 54|GGT	33|cis, 25|PCR, 21|a protein, 18|cyclin, 17|ORF, 13|Asp, 13|protein kinase, 13|phosphatase, 12|EBP, 12|prolactin	87|CD4, 39|IL-2, 38|p65, 36|Th1, 31|EBP, 28|AP-1, 25|p50, 24|IL-4, 24|CTL, 23|CD28
	GP7	1234|has, 940|mRNA, 725|receptor, 569|in vitro, 460|enzyme, 431|cDNA, 427|RNA, 417|Escherichia coli, 393|receptors, 388|conserved	442|has, 406|mRNA, 360|PCR, 326|neuronal, 270|pancreatic, 232|receptor, 163|ras, 157|apoptosis, 152|oncogene, 140|cDNA	166|has, 94|cDNA, 75|serum, 72|RNA, 69|conserved, 62|mRNA, 61|in vitro, 60|plasma, 51|receptor, 46|kinase	213|lymphocytes, 190|receptor, 113|has, 105|in vitro, 93|mRNA, 89|apoptosis, 87|CD4, 77|receptors, 74|lymphoid, 74|LPS

Table 13: **FP tagging errors (cos98)** The table gives an overview on the FP errors of the taggers (cos98 evaluation).