ANALYSIS OF HISTONES IN *XENOPUS LAEVIS*
PART I: A DISTINCT INDEX OF ENRICHED VARIANTS AND MODIFICATIONS EXISTS IN EACH CELL TYPE AND IS REMODELED DURING DEVELOPMENTAL TRANSITIONS

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Supplemental Figure 1. Sequence of *Xenopus* Histone H1fx

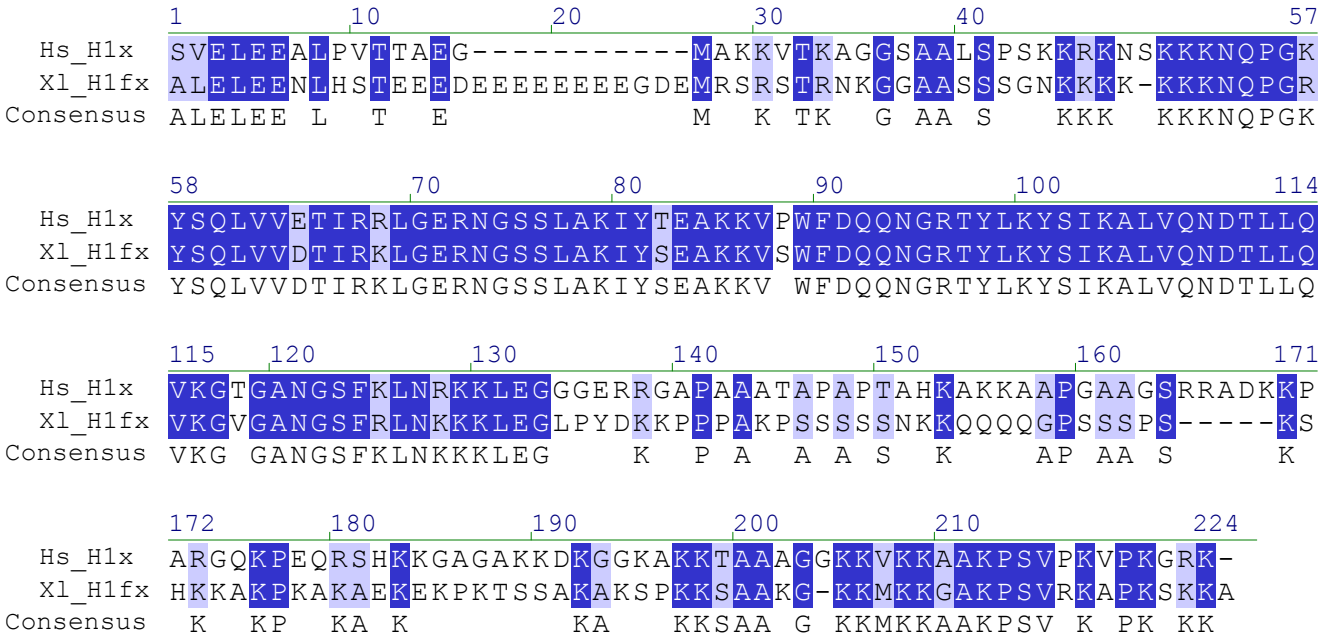
Sequence alignment of Human (Hs_) and *Xenopus laevis* (Xl_) H1fx/H1x proteins. The *Xenopus* H1fx protein is listed as NCBI GI number 83318207.

Supplemental Figure 2. Sequence of *Xenopus* Histone H1B.Sp

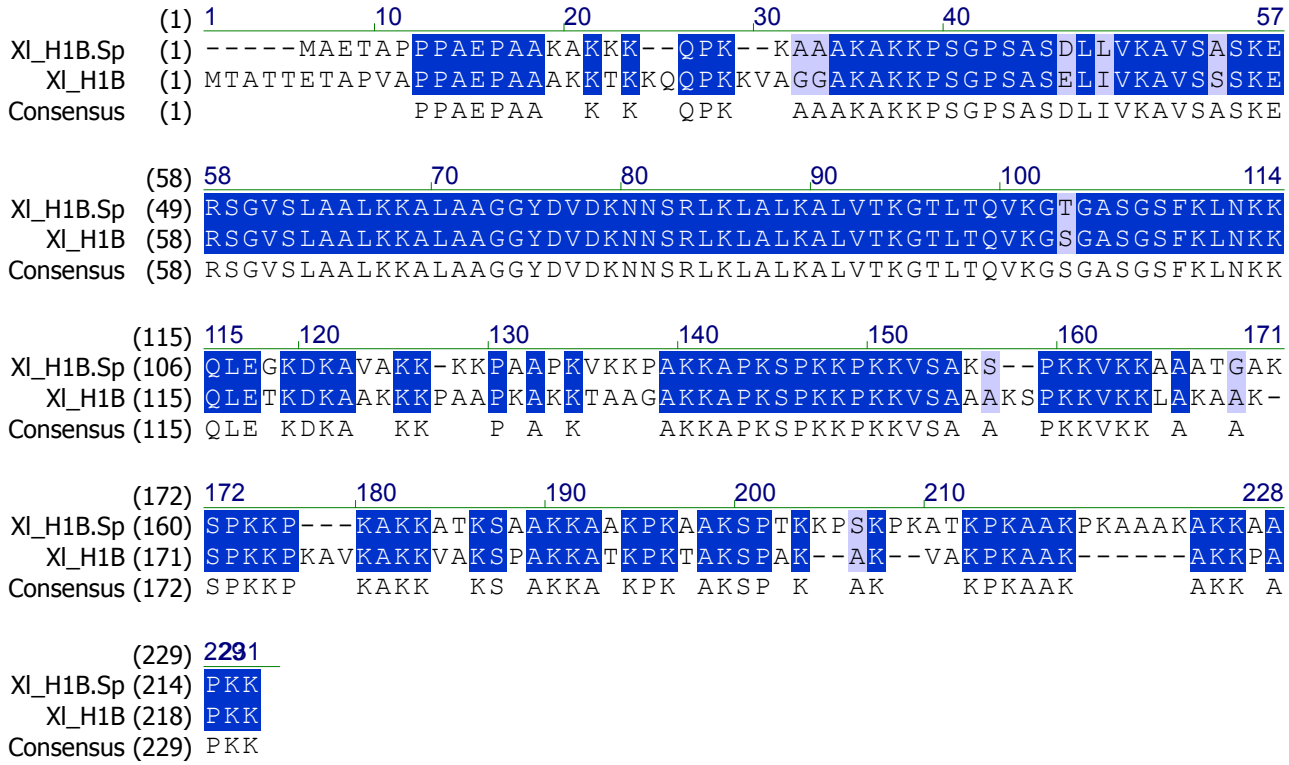
Sequence alignment of *Xenopus laevis* (Xl_) H1B and H1B.Sp proteins. The *Xenopus* H1B.Sp protein is annotated as "hypothetical protein LOC779170" under NCBI GI number 148235653.

Supplemental Figure 3. MS identification of 2D TAU/SDS gel slices

Proteins found in each gel slice are listed, with the number of tryptic peptides from each protein, the NCBI gi database number of the respective protein, and the common name(s) of the protein. **A.** Sperm histone 2D gel slices. **B.** Egg histone 2D gel slices. **C.** Early embryo (pronuclei) histone 2D gel slices. **D.** Erythrocyte histone 2D gel slices.



Supplemental Figure 1. Sequence of H1fx



Supplemental Figure 2. Sequence of H1B.Sp

Gel Slice	Number of Peptides	NCBI gi Number	Protein
1	3	148227628	H2A
	2	147902910	H2A
	1	73535880	H2A
	3	82201002	H2A.F/Z
	2	90108630	H2B
	3	28948510	H3
	4	46015166	H4
2	5	82201002	H2A.F/Z
3	1	4504239	H2A
	2	82201002	H2A.F/Z
	5	296216	H2B
	1	46015145	H3
	8	134104559	H3
	1	147906226	H3
	2	46015166	H4
4	1	27469648	H1, member X
	1	4504239	H2A
	3	90108630	H2B
	3	28948510	H3
	7	46015166	H4
5	1	27469648	H1, member X
	1	82201002	H2A.F/Z
	8	122034	H2B
	3	90108630	H2B
	4	46015166	
6	3	148234692	H1(0)-1
	1	27469648	H1, member X
	3	147906637	H1A
	1	121922	H1B
	2	122034	H2B
	2	46015166	H4
	1	559620	sperm-specific basic nuclear protein 5
7	2		H1(0)-1
	2	27469648	H1, member X
	1	122108	H1.0-B
	10	147906637	H1A
	2	148226616	H1A
	2	121922	H1B
	1	4885381	H1B
	3	147901299	H1B
	1	121924	H1B
	4	296140	H1B
	2	28948510	H1C
	2	134104559	H2B
	2	46015166	H3
	2	147907314	H3
	1	148223673	H4
	4	148235653	similar to H1
	1	1168088	sperm-specific basic nuclear protein-4

Supplemental Figure 3A. MS Identification of 2D TAU/SDS gel slices - Sperm Histones

Gel Slice	Number of Peptides	NCBI gi Number	Protein
1	9	gi|49522766|gb|AAH74176.1|	H2A.X
	8	gi|18000277|gb|AAL54900.1|	ribosomal protein S15 isoform
	7	gi|27881711|gb|AAH44715.1|	HMG-X protein
	7	gi|62857617|ref|NP_001015968.1|	Histone H2A
2	8	gi|30268544|emb|CAD89679.1|	H3
	6	gi|51258855|gb|AAH80133.1|	ribosomal protein S2e
	6	gi|50603982|gb|AAH77634.1|	ribosomal protein S23
	14	gi|47122925|gb|AAH70591.1|	40S ribosomal protein S4
	10	gi|18000277|gb|AAL54900.1|	ribosomal protein S15 isoform
3	8	gi|28316746|ref|NP_783583.1|	H4
4	4	gi|50370206|gb|AAH77046.1|	60S ribosomal protein L23a
	3	gi|62858675|ref|NP_001016009.1|	alpha globin larval-5
	3	gi|62858431|ref|NP_001016402.1|	LSM2 homolog, U6 small nuclear RNA associated
	3	gi|50370198|gb|AAH77007.1|	40S ribosomal protein S25
	3	gi|49671156|gb|AAH75196.1|	alpha(I)-globin
	3	gi|46249524|gb|AAH68730.1|	Pterin-4-alpha-carbinolamine dehydratase 2
	10	gi|28316746|ref|NP_783583.1|	H4
	5	gi|46249459|gb|AAH68628.1|	heat shock 10kDa protein 1
	4	gi|50542223|gb|AAT78451.1|	H4
5	11	gi|62857833|ref|NP_001017251.1|	histone 2, H2bf
	9	gi|1124998|emb|CAA63927.1|	ribosomal protein L22
	7	gi|871774|emb|CAA90077.1|	ribosomal protein S13
	6	gi|49256128|gb|AAH73013.1|	alpha globin larval-1
	6	gi|34194029|gb|AAH56505.1|	ribosomal protein S19
	7	gi|871774|emb|CAA90077.1|	ribosomal protein S13
	6	gi|49256128|gb|AAH73013.1|	alpha globin larval-1
	6	gi|34194029|gb|AAH56505.1|	ribosomal protein S19
	5	gi|50370206|gb|AAH77046.1|	Rpl23a protein
	5	gi|49671156|gb|AAH75196.1|	alpha(I)-globin
	5	gi|49115440|gb|AAH73375.1|	ribosomal protein S9
	5	gi|27881711|gb|AAH44715.1|	HMG-X protein
6	19	gi|49115440|gb|AAH73375.1|	ribosomal protein S9
	14	gi|62858861|ref|NP_001017063.1|	peptidylprolyl isomerase B (cyclophilin B)
	13	gi|62859791|ref|NP_001016697.1|	basic transcription factor 3
	13	gi|54261578|gb|AAH84369.1|	Ppib-prov protein
	11	gi|58332190|ref|NP_001011243.1|	Btf3l4 protein
	9	gi|871774|emb|CAA90077.1|	ribosomal protein S13
	9	gi|27881711|gb|AAH44715.1|	HMG-X protein
	8	gi|50370206|gb|AAH77046.1|	Rpl23a protein
	6	gi|64737|emb|CAA32067.1|	B4 protein
	6	gi|62858565|ref|NP_001016946.1|	Histone H1.4
7	9	gi|50370206|gb|AAH77046.1|	ribosomal protein L23a
	5	gi|545362|gb|AAB29881.1|	H1A
8	19	gi|27881711|gb|AAH44715.1|	HMG-X protein
	13	gi|38181929|gb|AAH61601.1|	HMG-X protein
	11	gi|49115440|gb|AAH73375.1|	ribosomal protein S9
	9	gi|49522962|gb|AAH75290.1|	Hmgb3-prov protein
	8	gi|62858175|ref|NP_001016486.1|	ribosomal protein L13a
	7	gi|709959|gb|AAC59859.1|	high mobility group protein-1
	7	gi|62857979|ref|NP_001016566.1|	40S ribosomal protein S8
	6	gi|62858459|ref|NP_001016391.1|	B4 protein

Supplemental Figure 3B. MS Identification of 2D TAU/SDS gel slices - Egg Histones

Gel Slice	Number of Peptides	NCBI gi Number	Protein
1	11	gi|30268544|emb|CAD89679.1|	Hist1h3f protein
	6	gi|49257812|gb|AAH74652.1|	polyubiquitin C
	5	gi|49522766|gb|AAH74176.1|	Histone H2A.x
	1	gi|49115274|gb|AAH73272.1|	Macro H2A
2a	4	gi|49522766|gb|AAH74176.1|	H2AX-F
	3	gi|50603936	H2A
	1	gi|34785262|gb|AAH56660.1|	H2AX-F
2b	7	gi|50603936	H2A
	3	gi|49522766|gb|AAH74176.1|	H2A.X-F
3	7		H3
	1		H3.2
	1		H3.3
4	7		H4
5	5	gi|62857833|ref|NP_001017251.1|	histone H2B
6	6	gi|27696450|gb|AAH44011.1|	H2A.Zl2 protein
	2	gi|27697448|ref|XP_214093.1|	H2A histone family, member V isoform
	4	gi|28316746|ref|NP_783583.1|	histone 4, H4
	5	gi|30268544|emb|CAD89679.1|	histone H3
7	3	gi|27697448|ref|XP_214093.1|	Histone H2AV (H2A.F/Z)
8	4	gi|62858459|ref|NP_001016391.1|	B4 protein
	2	gi|64737|emb|CAA32067.1|	B4 protein
9	5		Histone H1A
10	1	gi|47575778|ref|NP_001001233.1|	H1fx-prov protein

Supplemental Figure 3C. MS Identification of 2D TAU/SDS gel slices - Early-embryo Equivalent (pronuclei) Histones

Gel Slice	Number of Peptides	NCBI gi Number	Protein
1	3	148222886	histone H2A
2	6	122034	histone H2B
	2	148228507	H4 histone family, member A
3	7	76780124	H3 histone
4	8	50604163	histone H4
5	3	121918	Histone H1A
	2	121922	Histone H1B
	2	121923	Histone H1C (Clone XLHW2)
	2	121924	Histone H1C (Clone XLHW8)
	2	122108	Histone H1.0-B (Histone H1(0)-2) (Histone H5A)
	2	545362	H1A
	2	147901299	similar to H1B from X. laevis
6	2	121918	Histone H1A
	3	121922	Histone H1B
	2	296140	linker histone H1C
7	4	122108	Histone H1.0-B (Histone H1(0)-2) (Histone H5A)
	2	147907210	histone H1(0)-1

Supplemental Figure 3D. MS Identification of 2D TAU/SDS gel slices - Erythrocyte Histones