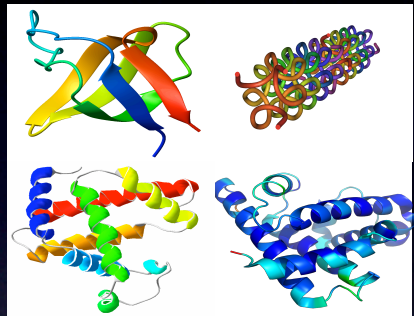


# Peptide Mapping to Pseudogenes

Baikang Pei  
04/05/2011

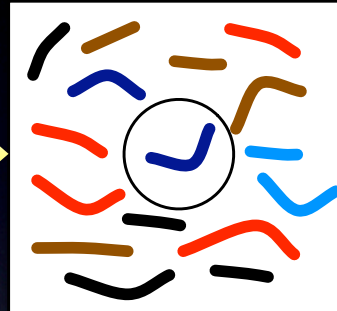
# Analyzing translation using proteogenomic mapping

Protein Sample



Proteolytic digestion

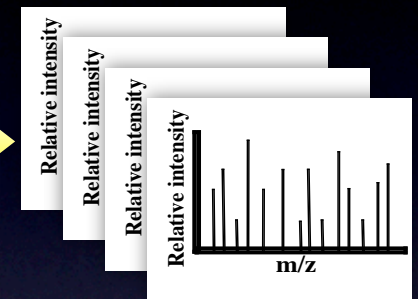
Peptides



Mass spectrometry analysis



MS/MS Spectra



Map



Human genomic sequence

6 frame translation and proteolytic digestion

Identify genomic loci

.....  
 2283.4  
 .....  
 2282.7  
 .....  
 3274.5  
 209.3  
 260.4  
 423.1  
 576.9  
 643.5  
 765.3  
 .....  
 .....  
 .....

Theoretical spectra list

>10<sup>6</sup> spectra  
 > 10<sup>9</sup> theoretical peptides

Compare and identify peptide

.....  
 3274.5 1  
 209.3  
 267.4  
 324.7  
 423.1  
 567.9  
 643.5  
 765.3  
 897.9  
 .....

Spectrum mass list

Spectrum processing

# Proteogenomic Data

Proteogenomic analysis was carried out for proteins from nuclear fraction of GM12878 and cytosol and membrane of K562.

At 10% FDR, ~ 95K genome loci matches from GM12878, and ~ 23K genome loci matches from K562.

Data can be downloaded from UCSC Encode FTP site, and proteogenomics track can be seen by UCSC genome browser.

chr1 67891915 67891948 RPDQQLQGEGK 182 - 187.443329 628.32638751605 1 3

Raw Score      Normalized Score      ID      Peptide Rank      Repeat

# Mapping to Pgenes

Proteogenomic: spectra from GM12878, ~95K loci

Pgenes: Yale pseudogenes release 61

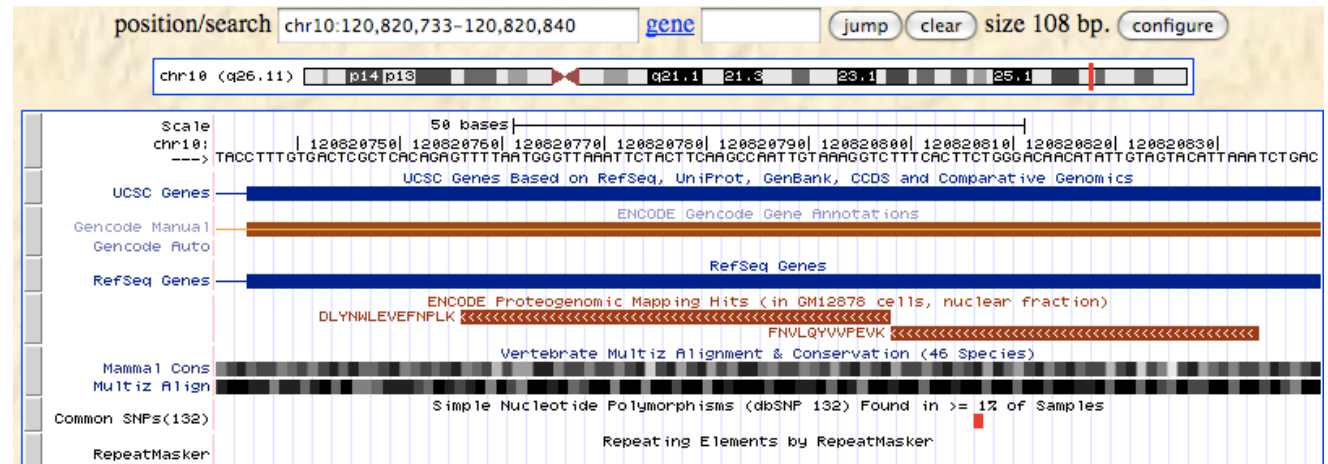
Total spectra searched	Total spectra mapped to pgene*	# of pgene loci
95,013	1,980	367

Total pgenes mapped	Duplicated	Processed	Ambiguous
251	44	172	35

\* Only unique matches are kept

# Mapping to Pgenes

Mapping percentage	# of pgene
0 - 10%	210
10 - 20%	36
20 - 30%	3
70 - 80%	1
80 - 90%	1
Total	251





# Mapping to Transcribed Pgenes

Proteogenomic: 367 loci mapped to Yala pgenes

Pgenes: transcribed pgenes from BodyMap data (provided by Lukas H.),  
lifted to Hg19 coordinates by UCSC liftover utility. 470 pgenes.

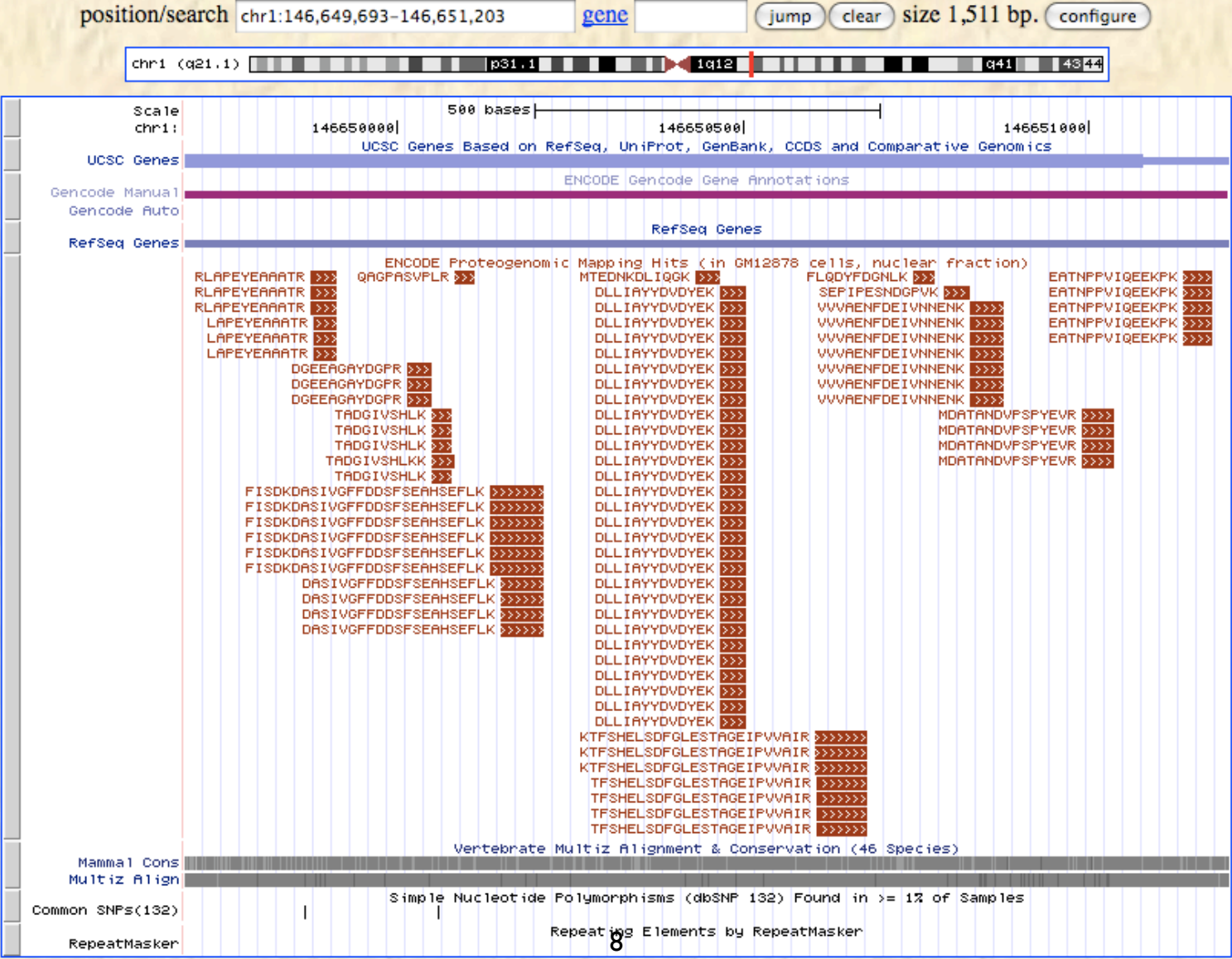
## Peptide loci

“Transcribed”  
pgenes

chr6	80146625	80146884	-	80146725	80146764	PGOHUM00000243260	6	80146625	80146884	-
chr13	49345264	49345963	+	49345638	49345680	PGOHUM00000248589	13	49345264	49345962	+
chr10	52024738	52026575	+	52024911	52024992	PGOHUM00000238794	10	52024738	52026572	+
chr10	52024738	52026575	+	52025408	52025450	PGOHUM00000238794	10	52024738	52026572	+
chr1	146649692	146651201	+	146650049	146650079	PGOHUM00000244962	1	146649693	146651203	+
chr1	146649692	146651201	+	146650049	146650082	PGOHUM00000244962	1	146649693	146651203	+
chr1	146649692	146651201	+	146650133	146650211	PGOHUM00000244962	1	146649693	146651203	+
chr1	146649692	146651201	+	146650148	146650211	PGOHUM00000244962	1	146649693	146651203	+
chr1	146649692	146651201	+	146650829	146650877	PGOHUM00000244962	1	146649693	146651203	+
chr2	162362408	162364216	-	162362446	162362488	PGOHUM00000240408	2	162357399	162364189	-
chr1	77165474	77166223	+	77165773	77165812	PGOHUM00000244760	1	77165441	77166220	+
chr1	192215849	192216617	-	192215964	192216012	PGOHUM00000244380	1	192215839	192216625	-
chr1	59096687	59097066	-	59096689	59096761	PGOHUM00000244049	1	59096684	59097202	-
chr7	27497782	27499365	-	27498141	27498180	PGOHUM00000232628	7	27497785	27498468	-
chr7	27497782	27498468	-	27498141	27498180	PGOHUM00000232628	7	27497785	27498468	-
chr3	116364592	116365252	-	116364866	116364899	PGOHUM00000237731	3	116364747	116365571	-
chr12	53535816	53536118	+	53535911	53535977	PGOHUM00000239792	12	53535816	53536115	+

“Translated”  
pgenes

# PGOHUM00000244962









# Congratulations to Huskies !

## Huskies Win Third National Championship

### • WELCOME THE HUSKIES HOME!

Connecticut delivered a historic defensive performance in the biggest game of the season, smothering Butler en route to a 53-41 victory on Monday night in the NCAA championship game in Houston. The Huskies set an NCAA record for field-goal percentage defense in a title game, and Kemba Walker led all scorers with 16 points to cap off one of the most extraordinary postseason runs in history.

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[Gallery #1](#) 📷 | [Gallery #2](#) 📷 | [NCAA Tournament Central](#)  
[Game Highlights](#) 📺 | [Calhoun Press Conference](#) 🗣️

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