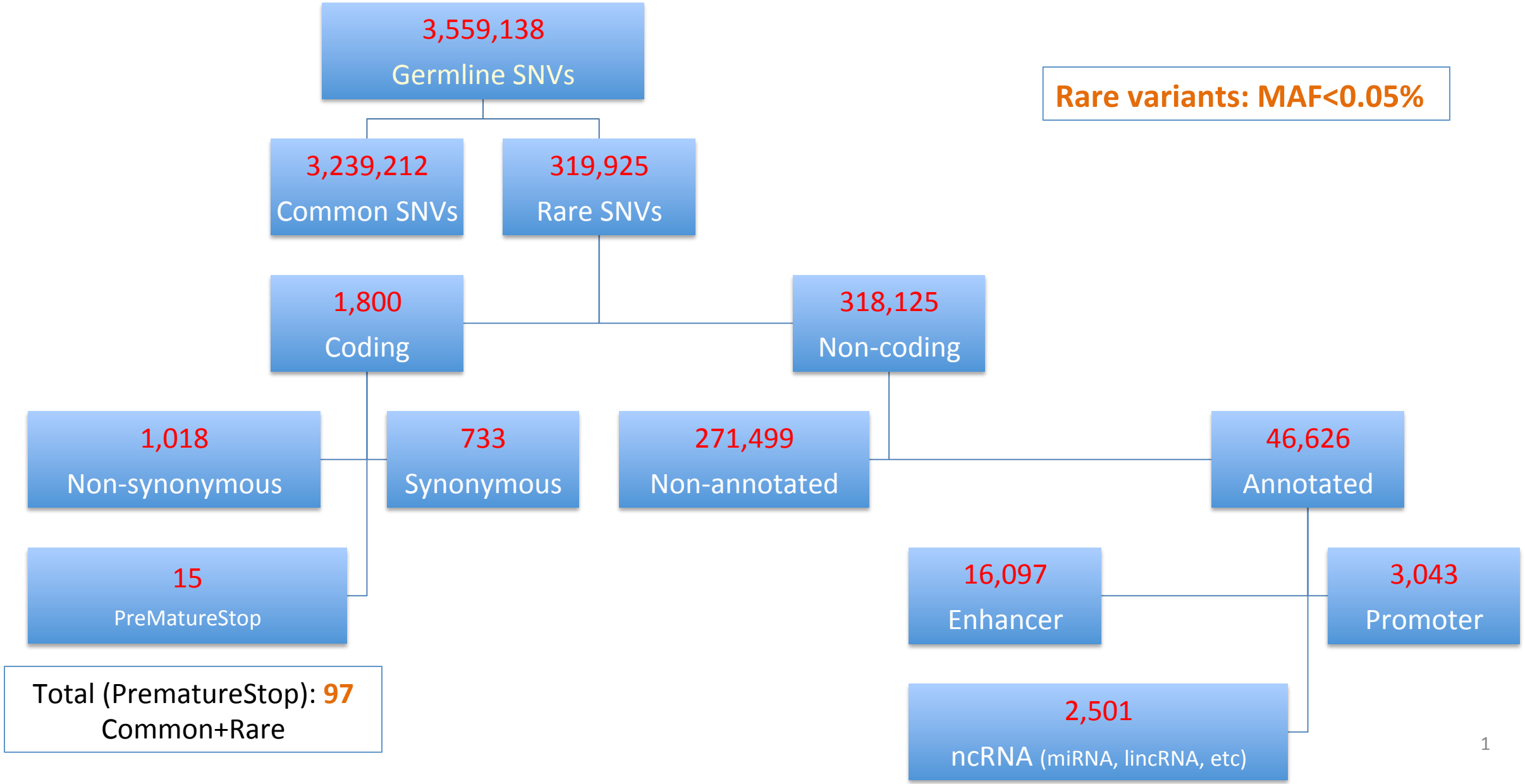
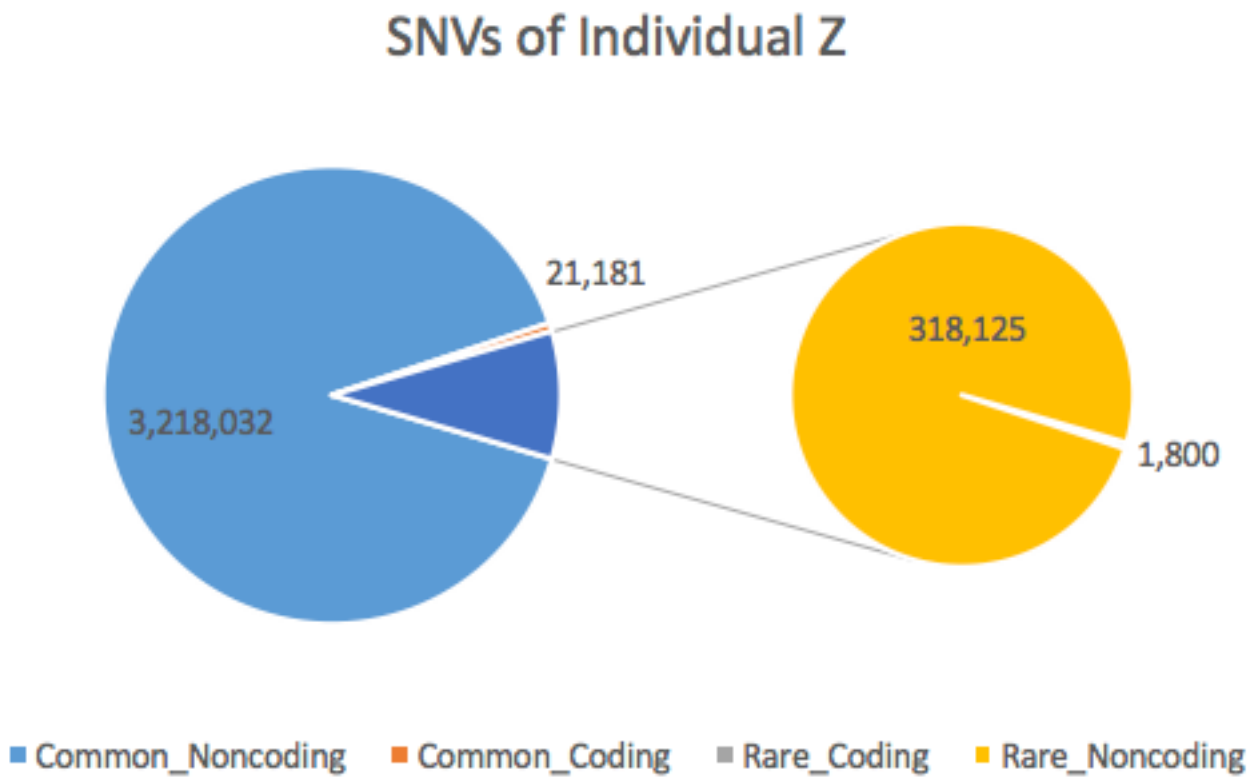
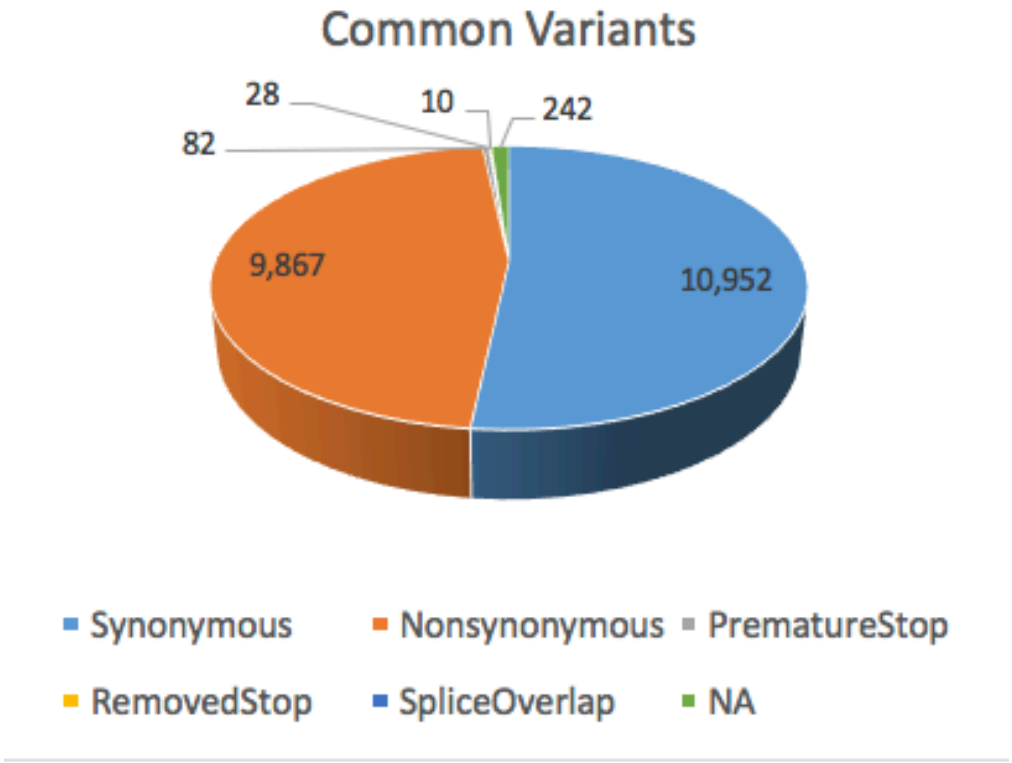
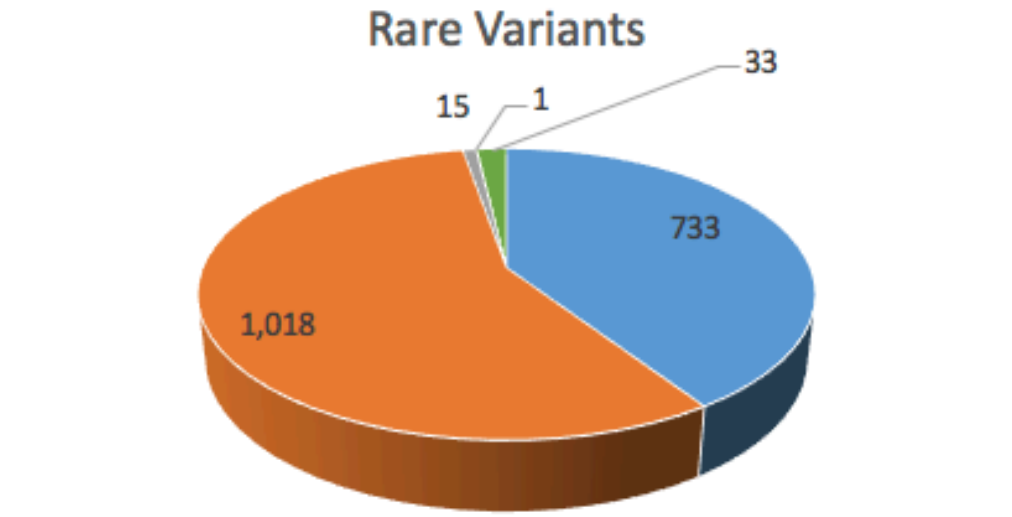
Individual Z Overview



Overview & Coding Variants







PrematureStop Coding Variants

- 97 variants -> 95 genes

AC018755.1	CDH2	GBGT1	OR4C11	SLC22A24
AC079612.1	CHCHD10	GPSM1	OR4P4	SLC6A18
ADAMTS12	CLDN5	HAPLN3	OR4X2	SLFN13
AKR1E2	COX10	HLA-DRB5	OR52J3	SMPD4
ANGPTL6	CPN2	KRT37	OR52N4	SPATA8
ANKDD1B	CRNKL1	KRTAP10-6	OR5AR1	TAAR2
ARHGEF38	D2HGDH	KRTAP13-2	OR6C74	TCP11L1
ATXN3	DBI	LAIR2	OVCH2	TIAM2
B3GNT6	DNAH14	MAGEB16	PCGF2	TMEM260
C19orf10	EFCAB13	MAPK11	PDE4DIP	TPTE
C1orf145	EML3	MISP	PITX2	TSSC1
C1orf168	FAM187B	MUC19	PKD1L2	TTC4
C5orf20	FAM86B1	NKD2	POMT1	UBE2NL
C5orf38	FAM8A1	NPDC1	PSMG4	USP29
C8orf49	FCRL6	OPRM1	PXDNL	VPS13B
CAPN8	FLG2	OR10D3	RNF212	XRRA1
CASP12	FLJ30594	OR1B1	RP11-542P2.1	ZIM3
CCDC47	FUT2	OR2J1	SIGLEC12	ZNF117
CCHCR1	GAB4	OR2L8	SLC22A10	ZNF714

PrematureStop Coding Variants

- 97 variants -> 95 genes

  - ATXN3 [DNA_repair]
    - Ataxin 3; Deubiquitinating enzyme
    - Akt signaling pathway
    - **Machado-Joseph disease (neurologic disorder); Parkinsons disease; Ataxia**
  - CDH2 [actionable]
    - Cadherin 2; calcium-dependent cell adhesion proteins
    - L1CAM interactions; ERK Signaling
    - **hypoplastic left heart syndrome; pseudomyxoma peritonei; metastasis; tumor**
  - PDE4DIP [cancer] —> **Rare variants**
    - Phosphodiesterase 4D Interacting Protein;
    - anchor sequestering components of the cAMP-dependent pathway
    - **myeloproliferative disorder (MBD) associated with eosinophilia**

Rare Non-synonymous Coding Variants

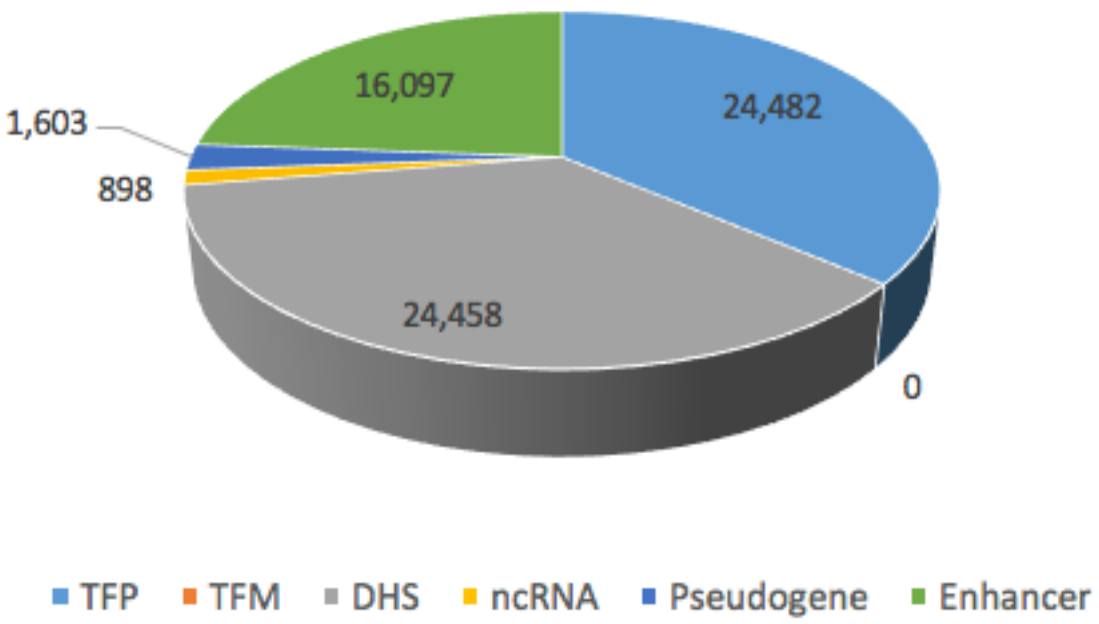
- 1018 SNVs -> 824 target genes

Gene Annotation	Gene Name
Cancer-related	NOTCH2; PDE4DIP; TPR; CRTC3; CDH11; MLLT6; ASXL1; HMGA1; KDM6A
DNA repair	RECQL; RAD51; PPM1D; XRCC1; AP1B1; FANCI; PTPRH; RBBP7; SLX4; POLR2A; DCLRE1C; ANKLE1
Cancer & DNA repair	ATM; PMS2; ERCC5
Actionable Gene	ATM; KDM6A; INSR; FOXP4

- ATM: Serine/Threonine Kinase; Regulator of p53 and BRCA1; leukemia; ataxia-telangiectasia; breast cancer
- PMS2: Direct p53 effectors; mismatch repair cancer syndrome; colorectal cancer; hereditary nonpolyposis
- ERCC5: Chks in Checkpoint Regulation; DNA Repair; xeroderma pigmentosum
- KDM6A: Transcriptional misregulation in cancer
- INSR: Insulin Receptor; PI3K-Akt signaling pathway; GPCR Pathway; Diabetes mellitus
- FOXP4: Transcriptional repressor that represses lung-specific expression

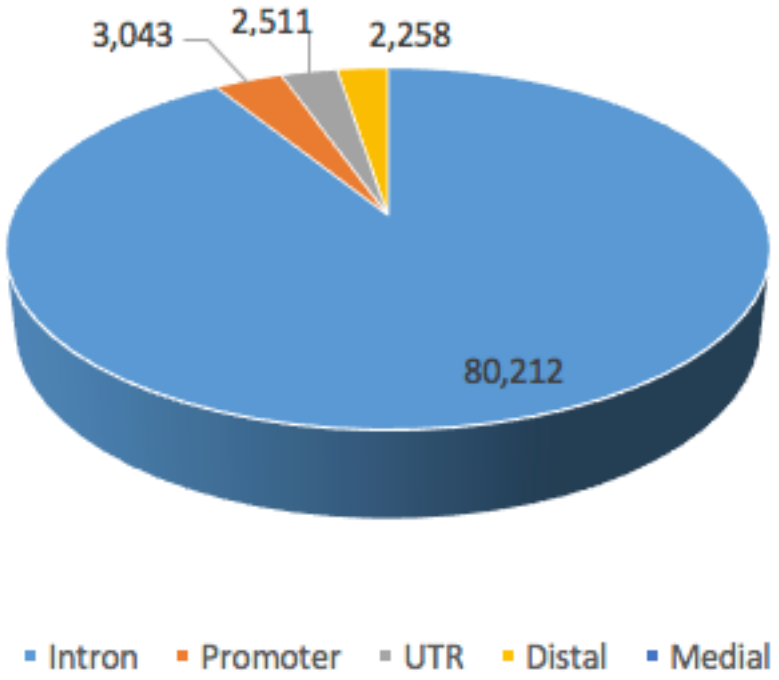
Annotation of Rare Noncoding Variants

- ENCODE Annotation

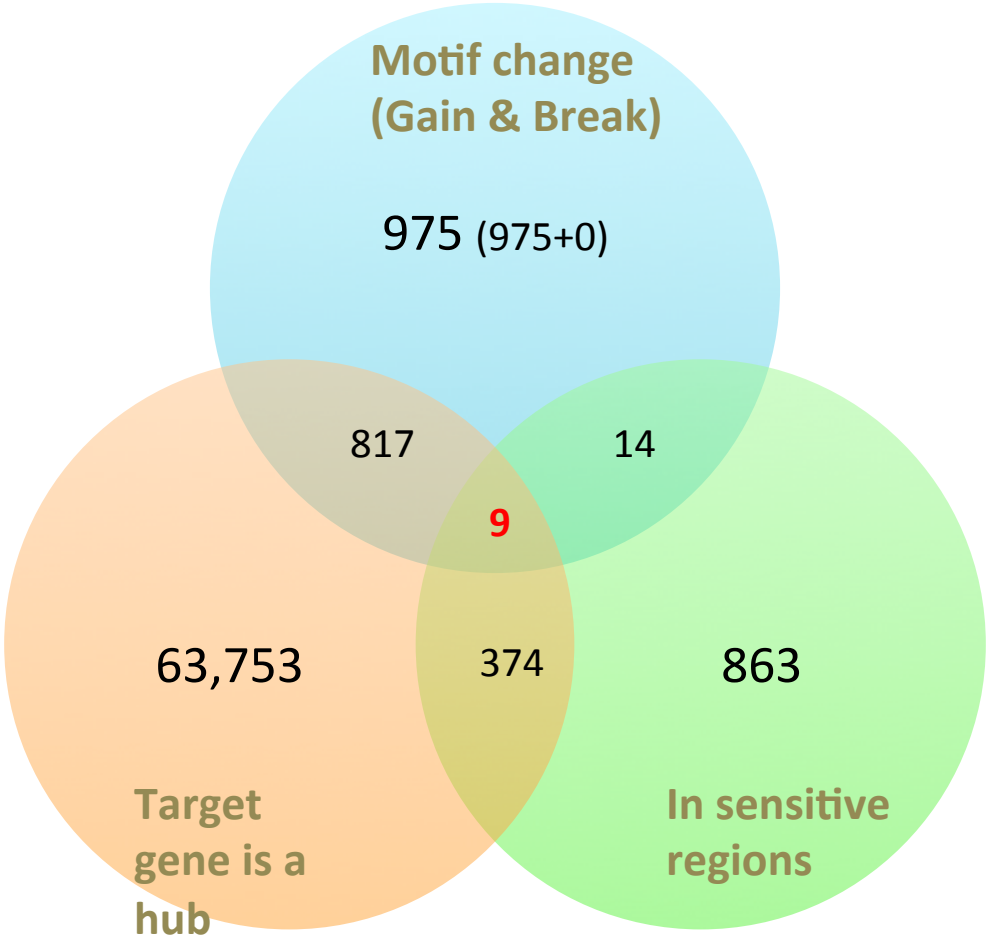


- TFP - transcription factor binding peak
- TFM - transcription factor bound motifs in peak regions
- DHS - DNase1 hypersensitive sites

- Target Gene-level Analysis
  - promoter & distal regulatory module



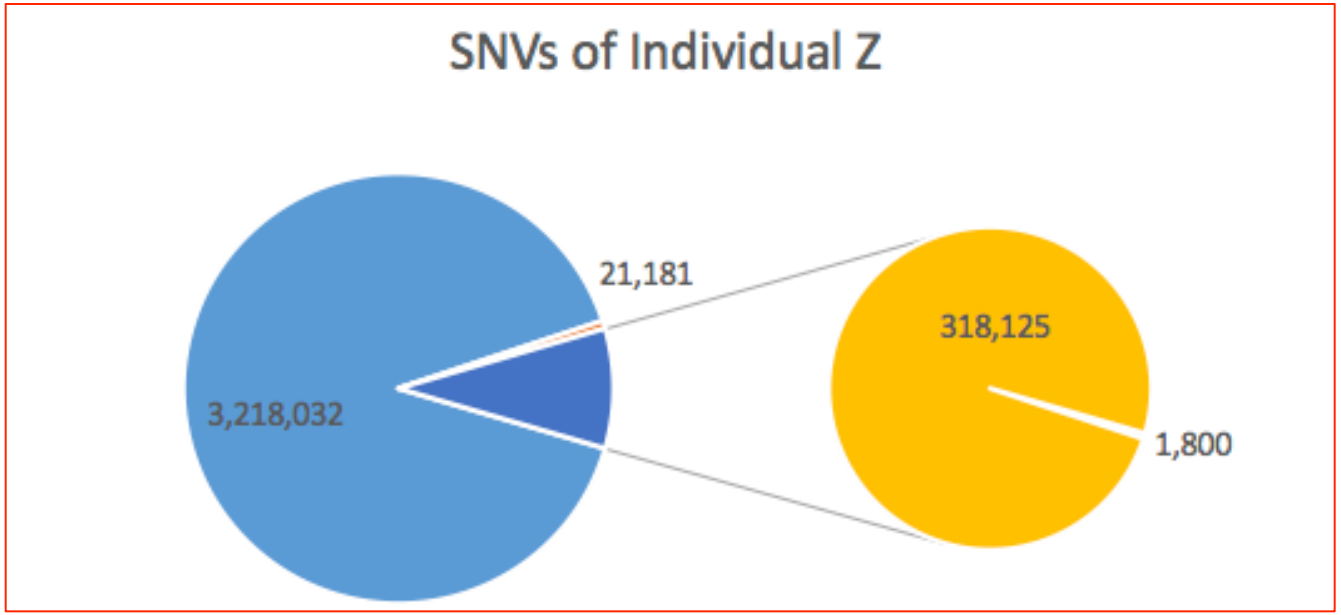
Annotation of Rare Noncoding Variants

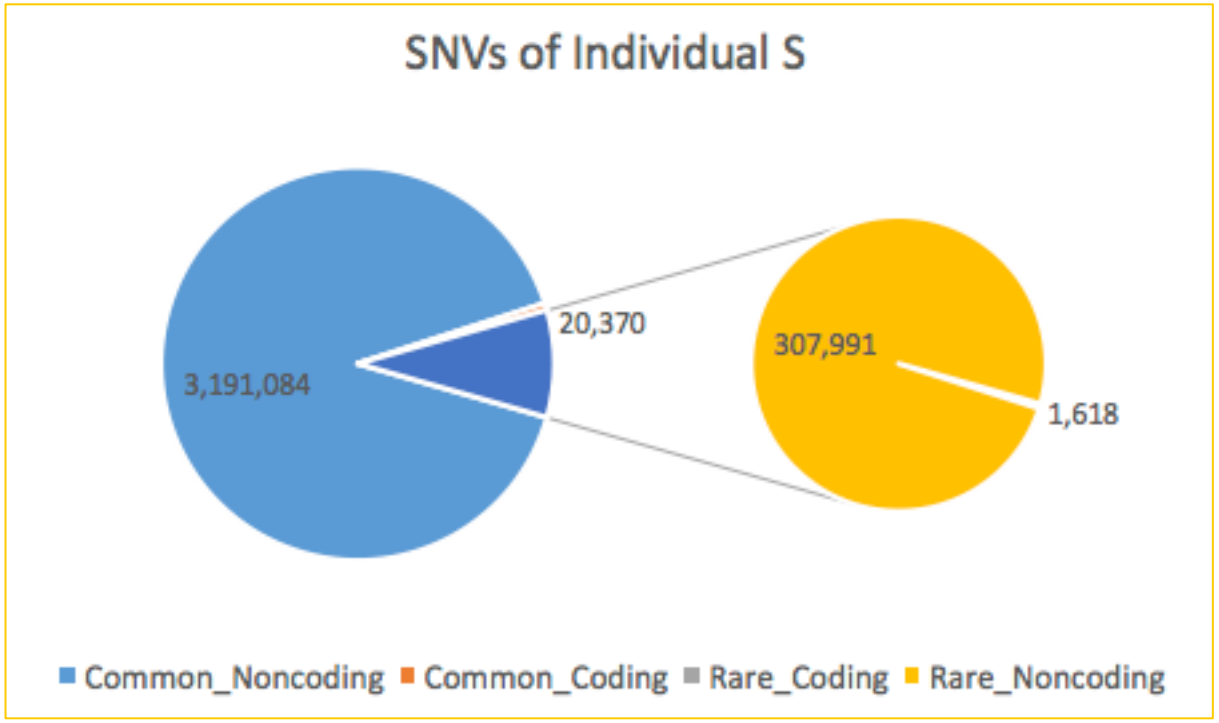


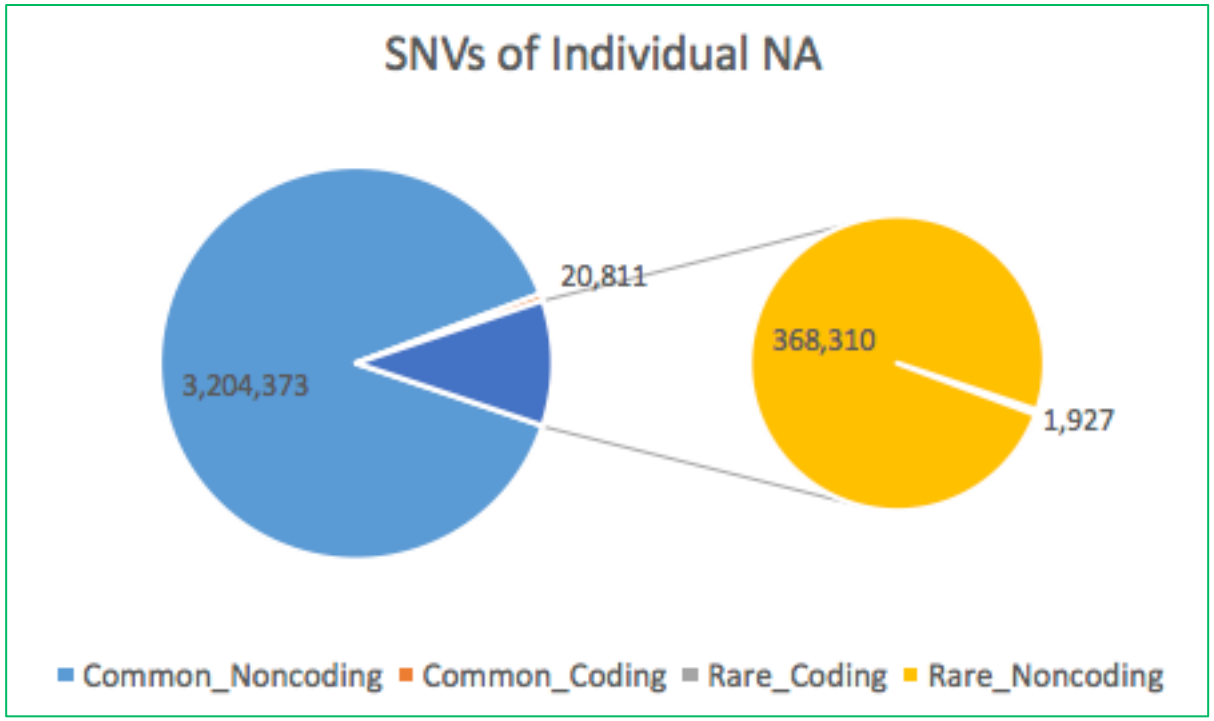
- 9 variants -> 11 target genes

Gene Name	Variant Location	Function Annotation
RPL10	(Promoter&UTR)	[cancer]
PDE4DIP	(Distal&Intron)	[cancer]
ZNF595	(Intron&Promoter)	
GADD45G	(Promoter)	[DNA_repair]
CCND2	(Distal)	[actionable][cancer]
ACAP3	(Intron)	
VANGL2	(Promoter)	
SEC22B	(Distal)	
RNU1-9	(Distal)	
PARP11	(Distal)	
PUSL1	(Promoter)	

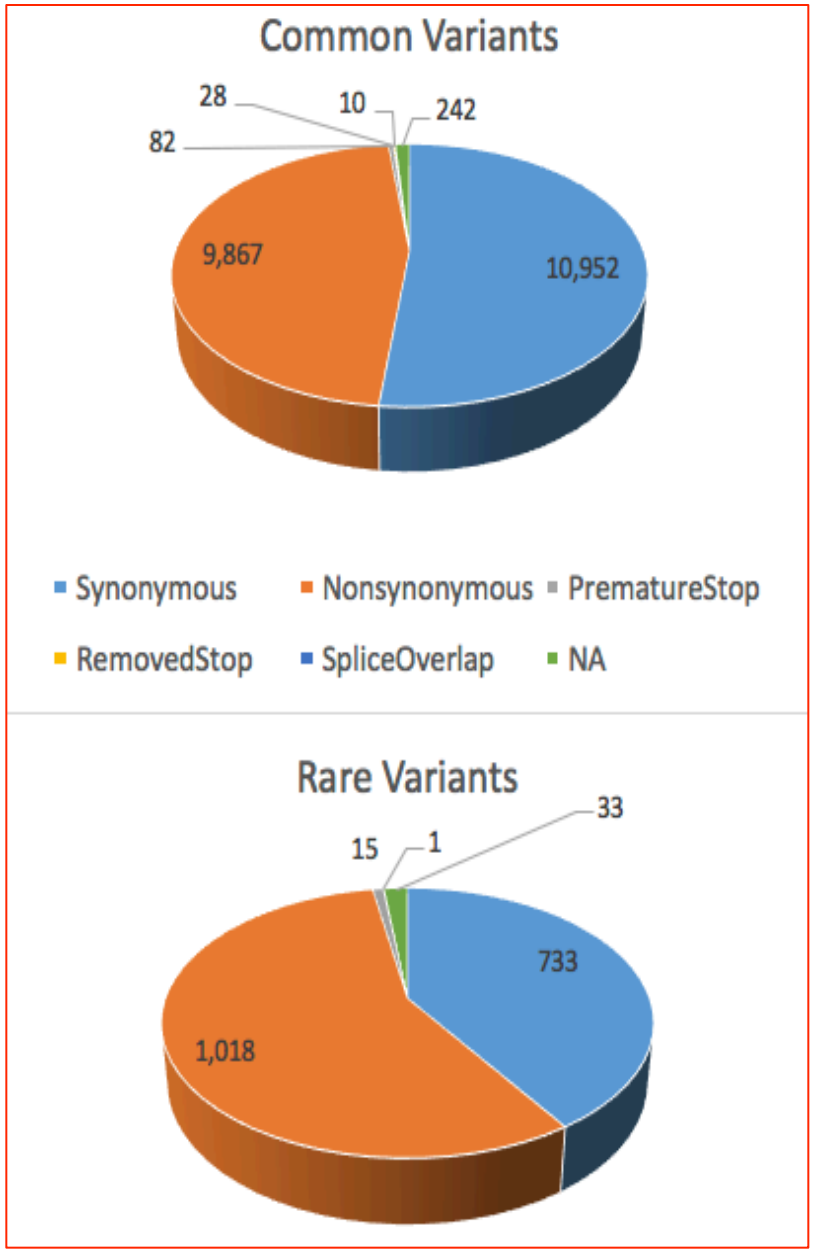
Overview

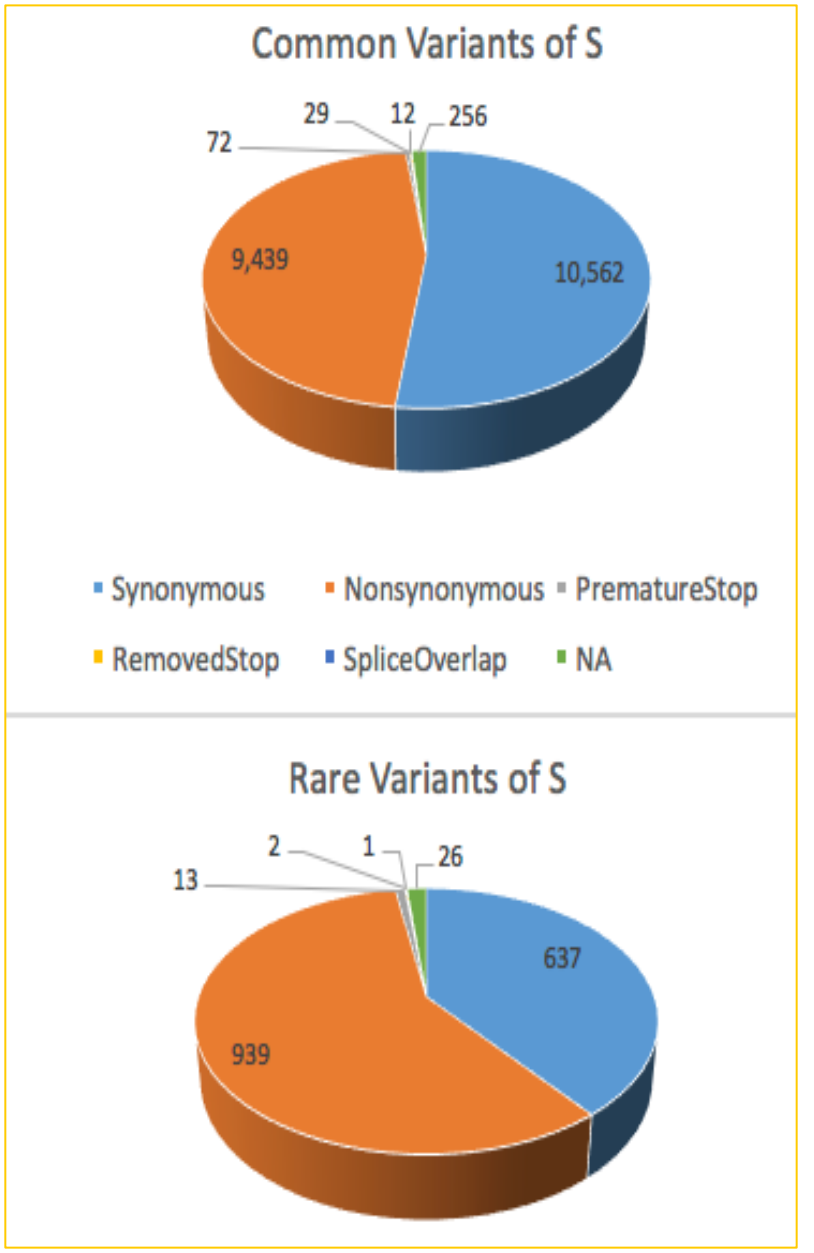

SNVs of Individual Z
21,181
3,218,032
318,125
1,800

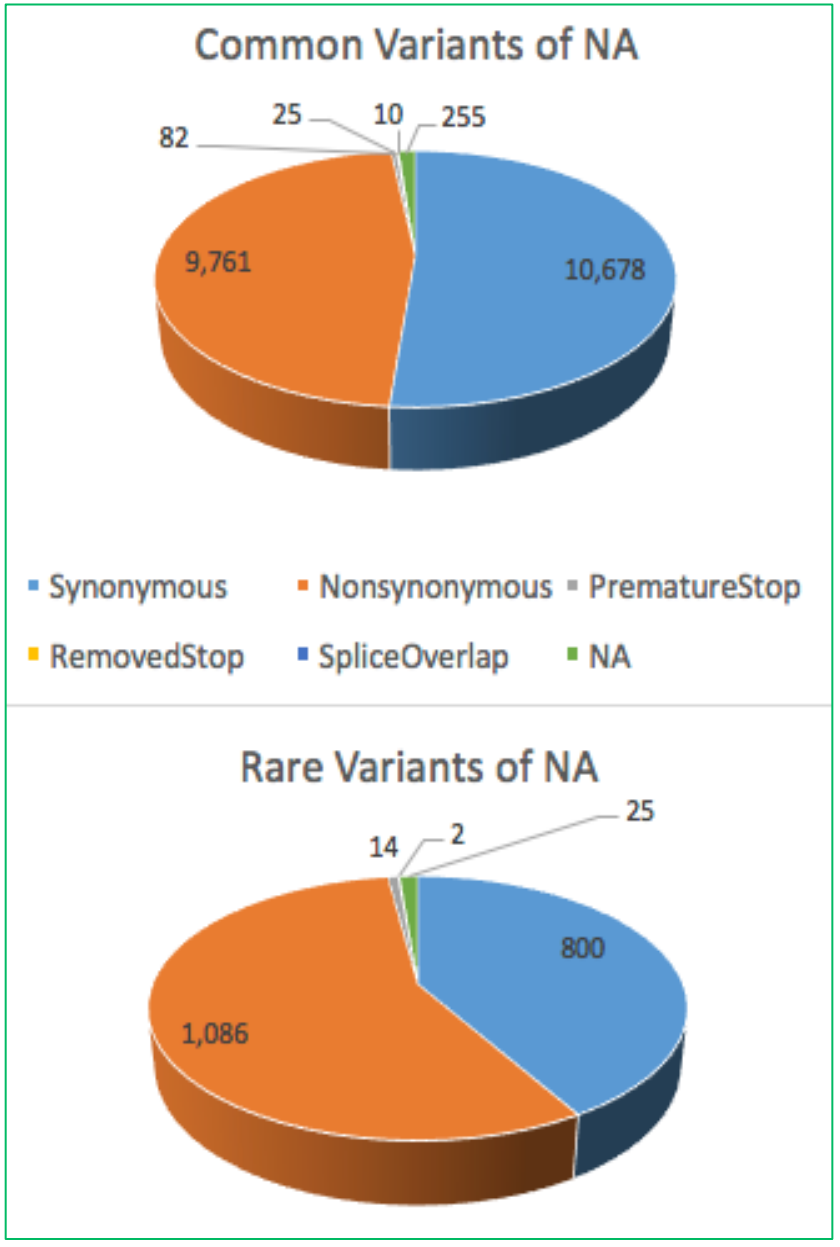

SNVs of Individual S
20,370
3,191,084
307,991
1,618
Common_Noncoding
Common_Coding
Rare_Coding
Rare_Noncoding


SNVs of Individual NA
20,811
3,204,373
368,310
1,927
Common_Noncoding
Common_Coding
Rare_Coding
Rare_Noncoding

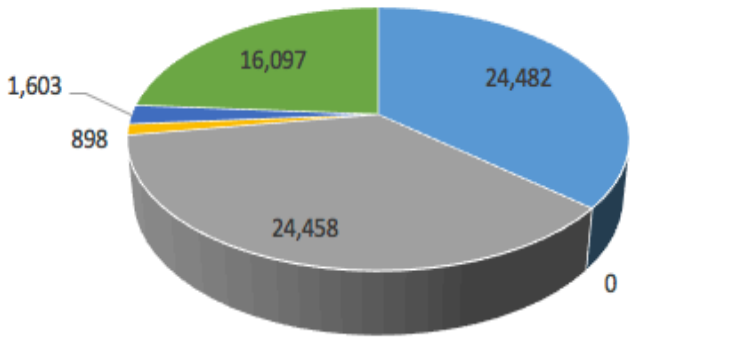
Coding Variants



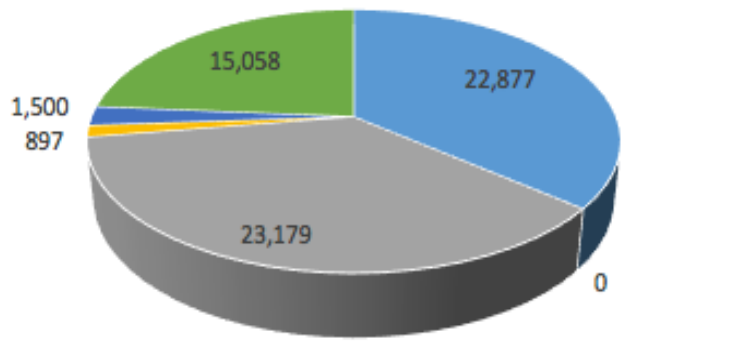




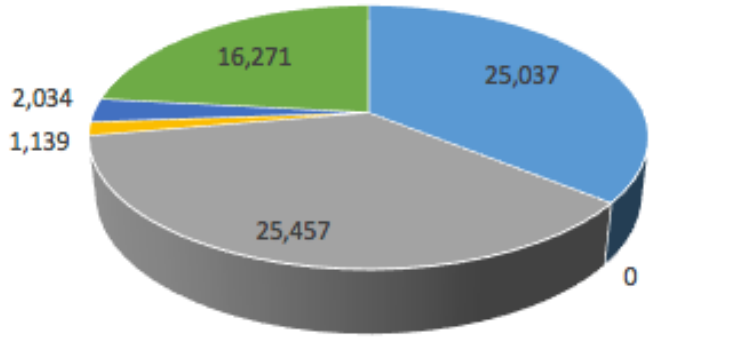
ENCODE Annotation



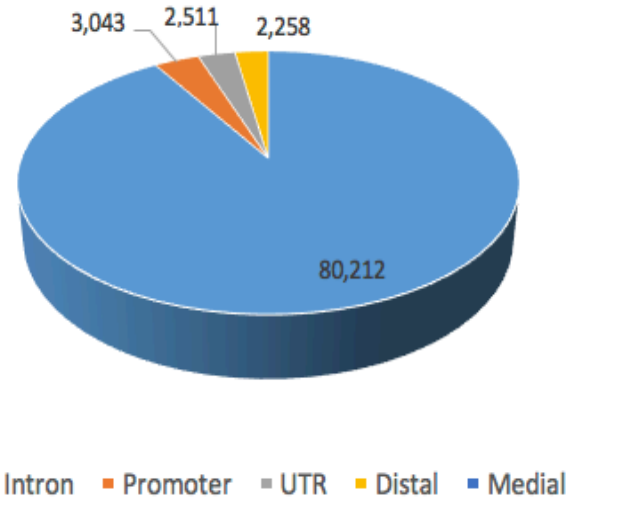
ENCODE Annotation of S



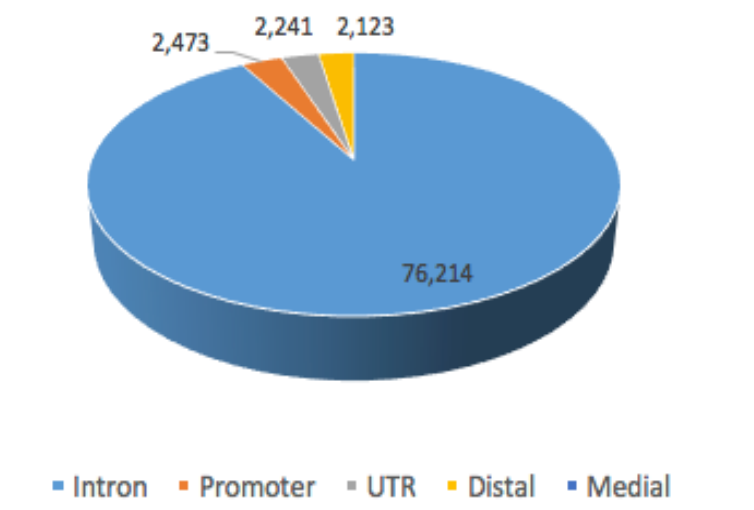
ENCODE Annotation of NA



Target Gene-level Analysis



Target Gene-level Analysis of S



Target Gene-level Analysis of NA