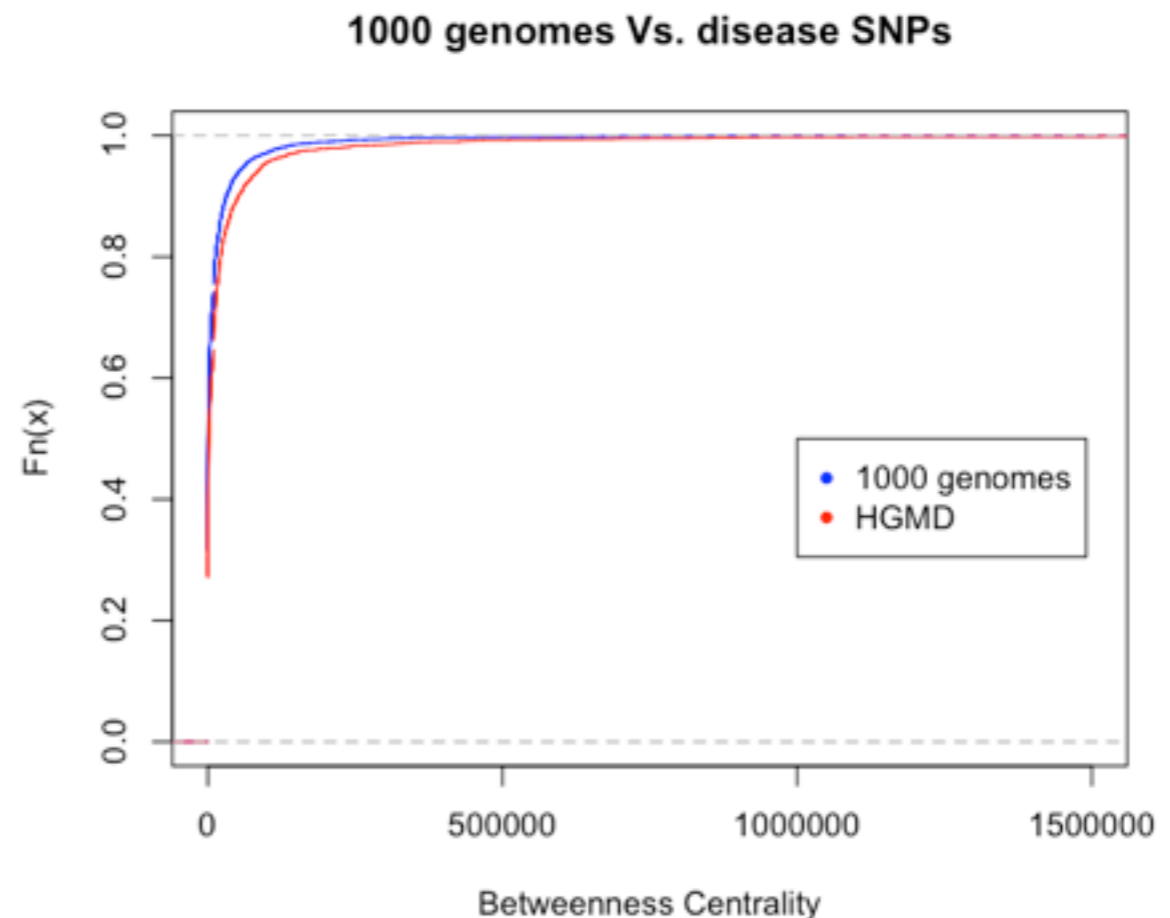
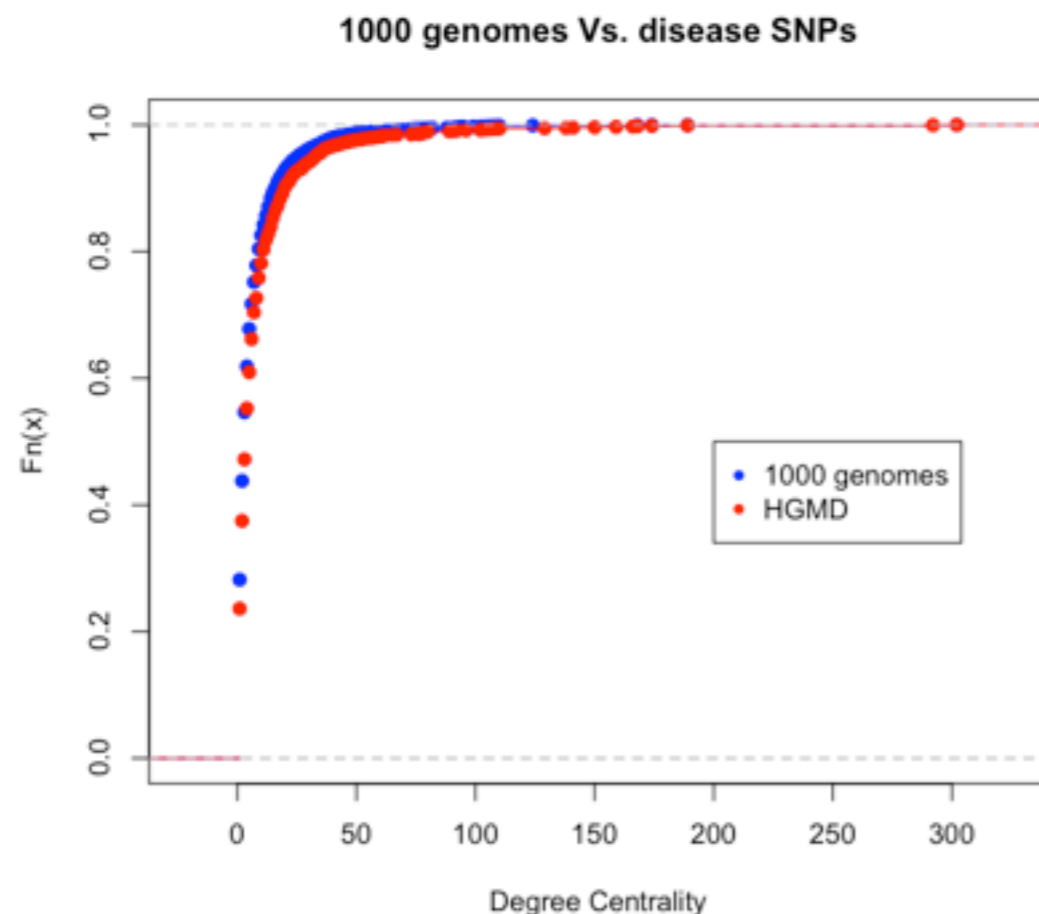


Propensity of gene having disease SNPs in human PPI

- **Disease SNPs Data:** HGMD. Disease related non-synonymous mutations. 54076 SNPs involved in 3014 genes.
- **Degree centrality:**
 - HGMD:** p-value = 0.8814; rho= -0.01353805
 - 1000 genomes:** p:0.004564; rho=-0.2531062 (CEU)
- **Betweenness centrality:**
 - HGMD:** p-value < 2.2e-16; rho=0.1084879
 - 1000 genomes:** p-value = 0.3246; rho=-0.01246184 (CEU)



Positive selection & Tissue specificity

Data: positive selection(Ensembl) & tissue specificity (1984 TFs in 34 tissues).

Correlate dn/ds and tissue specificity score

Result: p-value = 0.0004633; rho=0.09198712

Higher dn/ds score genes have higher tissue specificity scores

Question: which tissue is correlated with positive selection?

Thanks to Koon Kiu

Adipose	0.1054	0.04261133
Adrenal_Gland	0.01973	-0.06132638
Bone_Marrow	0.1340	-0.03944304
Breast	0.06117	-0.04926487
Cerebellum	0.02563	0.05871237
Fetal_Brain	0.07505	-0.04684421
Fetal_Liver	0.228	-0.03173269
Fetal_Lung	0.05658	0.05016688
Frontal_Cortex	0.3816	0.02303419
Heart	0.1652	-0.0365292
Kidney	0.3569	0.02425272
Liver	0.3763	-0.02329284
Lung	0.6451	-0.01212551
Lymph_Node	0.06783	0.04805362
Occipital_Cortex	0.03461	0.05558696
Ovary	0.0007086	-0.0889804
Pancreas	0.1737	-0.03580915
Parietal_Cortex	0.1405	0.03879248
Placenta	0.0001066	-0.101764
Prostate	0.001259	-0.08476536
Salivary_Gland	0.2355	-0.03122884
Skeletal_Muscle	0.0002796	-0.09545007
Skin	0.007503	-0.07030843
Smooth_Muscle	0.3459	0.02481160
Spinal_Cord	0.0541	-0.05067892
Spleen	0.5525	-0.01563744
Testis	5.80E-11	0.1711546
Thymus	0.04595	-0.05251326
Thyroid	0.1146	0.04153116
Trachea	0.005429	-0.0731088
Uterus	4.65E-05	-0.1069179
Whole_Brain	0.0724	-0.04727602
THP-1	0.4758	0.01877255
THP-1+PMA	0.5013	0.01770382

Adipose	0.0364789084687508
Adrenal_Gland	-0.00777557023619967
Bone_Marrow	0.00392842169929606
Breast	0.024467403502368
Cerebellum	0.0627633460021419
Fetal_Brain	0.00801873606047469
Fetal_Liver	0.0347027058694152
Fetal_Lung	0.0485482533618583
Frontal_Cortex	0.019631662096081
Heart	0.00316801874594697
Kidney	0.00787974003865265
Liver	-0.00736605394473432
Lung	0.0144289238495054
Lymph_Node	0.0676408665390026
Occipital_Cortex	0.0462827291600472
Ovary	0.00164253333661179
Pancreas	-0.0110947368162559
Parietal_Cortex	0.0368340329082086
Placenta	0.086363084711289
Prostate	0.00784329838539786
Salivary_Gland	-0.00613339811613058
Skeletal_Muscle	-0.0106263851370093
Skin	0.112035860534681
Smooth_Muscle	0.0170537435901159
Spinal_Cord	0.0024527193656429
Spleen	0.0066644434369343
Testis	0.436843051081325
Thymus	-0.00224574803497419
Thyroid	0.00944884682463301
Trachea	-0.00279059614113388
Uterus	0.0109964858929015
Whole_Brain	0.0106347007398739
THP-1	0.0539767681440536
THP-1+PMA	0.0103943399604907

dn/ds >1 TFs' tissue average specificity

57 TFs

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TFs

57

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