Summary data on fQTLs calculated from 12 cell types [using TPM]
These 12 cell types have at least 30% of non-zero values across all individuals

#Cell_type	num_fQTLs	min_bonf_corrected_p_val	max_bonf_corrected_p_val
Microglia	2528	1.77E-18	0.049922298
Ex8	995	1.06E-35	0.049858929
Ex3	324	5.67E-20	0.048114878
Ex4	195	2.06E-16	0.04814516
Astrocytes	58	3.76E-06	0.045980094
Ex5	3	2.79E-06	0.00802804
In6	21	9.56E-09	0.042765232
In8	20	0.000143941	0.021903179
Endothelial	42	0.003364832	0.047003944
Ex1	0	na	na
Oligodendrocytes	0	na	na
Neuron	0	na	na

Stats on fQTLs w/SNVs that coincide with trans-eQTLs [matched to fQTLs identified using TPM]

439/457 biomarker genes have all required data (ENSG ID, TSS, etc.)

12 cell types				
p_val_thresh	tot # matches	# *unq* matched SNVs	# unq fQTL SNVs	fract unq fQTL SNVs that match eSNVs
0.05	156275	**2805**	3720	**0.754**
0.1	182554	3686	4745	0.777
0.15	201518	4318	5513	0.783

* P-values are Bonferroni-corrected (for both fQTLs and trans-eQTLs)

Identify fQTLs that share SNVs with *cis*-eQTLs (for both protein-coding genes and non-coding) [matched to fQTLs identified using TPM]

	12 cell types		24 cell types	
p_val_thresh	# matched SNVs (distinct)	fract unq fQTL SNVs that match eSNVs	# matched SNVs (distinct)	fract unq fQTL SNVs that match eSNVs
0.05	**640**	0.172043011	7258	0.130330945
0.1	839	0.176817703	8359	0.132220816

[Integer values represent the number of distinct SNVs (ie, not double-counting) shared between at least one fQTL and at least one cis-eQTL]

Not as robust, but better sensitivity (and lower asymptotic variance)

$$\text{mean} = \min(\text{m}): \sum_{i=1}^{n} [x(i) - m]^2$$

Robust, but poorer sensitivity (and greater asymptotic variance)

$$\text{median} = \min(\text{m}): \sum_{i=1}^{n} |x(i) - m|$$

Compromise btwn mean and median: Huber estimators in linear regression

$$\text{Huber estimator} = \min(\text{m}): \sum_{i=1}^{n} \rho(x(i) - m)$$

if $|\text{x(i)} - \text{m}| < \text{k}$: $\rho(\text{x(i)} - \text{m}) \equiv \frac{1}{2}(x(i) - m)^2$ ← **has more "mean-like" properties**

if $|\text{x(i)} - \text{m}| > \text{k}$: $\rho(\text{x(i)} - \text{m}) \equiv \text{k}|\, x(i) - m\,| - \frac{1}{2}k^2$

→ **has more "median-like" properties**