

# Explain ceRNA effect from genomic mutations

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## 1 Background and Questions

Based on Hua-sheng's defense topic which excluded mutation, cnv for ceRNA effect Question 1: SNPs/CNVs/Methylations/Somatic mutations regulate gene expressions, the expression of genes have effect on ceRNA effect, but how much does each of them contribute to the final ceRNA effect?

Question 2:

Goal:

Find snps that are associated with DEGs, and explain its effect using network approach

## 2 Methods

1. SNPs association with Gene Expression \* SNP filtering process 1: - SNP quality, - SNP MAF - HWE test \* association study : - Cohen's Kappa [http://en.wikipedia.org/wiki/Cohen's\\_kappa](http://en.wikipedia.org/wiki/Cohen's_kappa) feature selection methods group lasso hierarchical structure: 2. TSS 3. 3' UTR

## 3 Data

1. TCGA level2 SNP array 2. TCGA level3 CNV (SNP array) 3. TCGA level3 RNAseq ...

Workflow

**3.1**

**3.2**

## **4 Validation**

UK10K 1000 Genome Encode data 3C, 5C, H-G

## **5 Conclusion**

## **Acknowledgement**

## **6 Figures**