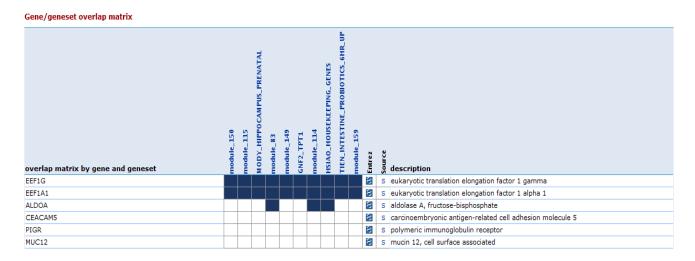
Questão 02) Classificar funcionalmente os genes anotados e validados no tecido Normal e Tumoral, usando o site GSEA (Gene Set Enrichment Analysis). Em seguinda faça uma análise crítica dos resultados.

Utilizando o site GSEA, podemos analisar funcionalmente os genes anotados, abaixo estão as analises feitas para os genes em seus respectivos tecidos:

Genes no tecido normal:

Gene/geneset overlap matrix													
overlap matrix by gene and geneset	REACTOME_SMOOTH_MUSCLE_CONTRACTION	V\$SRF_Q5_01	V\$SRF_Q6	REACTOME_MUSCLE_CONTRACTION	STRUCTURAL_MOLECULE_ACTIVITY	CCAWWNAAGG_V\$SRF_Q4	MORE_TPT1	GNF2_FBL	MORF_ACTG1	REACTOME_INFLUENZA_LIFE_CYCLE	Entrez	Source	description
MYH11											8	s	myosin, heavy chain 11, smooth muscle
ACTG2											ક	s	actin, gamma 2, smooth muscle, enteric
TLN1											8	s	talin 1
ACTB											8	s	actin, beta
COL1A1											ક	s	collagen, type I, alpha 1
RPS4X											ક	s	ribosomal protein S4, X-linked
RPL3											ક	s	ribosomal protein L3
KPNB1											ક	s	karyopherin (importin) beta 1
HSP90B1											ક	S	heat shock protein 90kDa beta (Grp94), member 1

Genes comuns aos dois tecidos:



Genes do tecido tumoral:

Gene/geneset overlap matrix													
overlap matrix by gene and geneset	SWEET_LUNG_CANCER_KRAS_UP	BENPORATH_MYC_TARGETS_WITH_EBOX	ALCALA_APOPTOSIS	HSIAO_HOUSEKEEPING_GENES	DANG_MYC_TARGETS_UP	LUI_THYROID_CANCER_CLUSTER_3	TIEN_INTESTINE_PROBIOTICS_2HR_UP	LUI_TARGETS_OF_PAX8_PPARG_FUSION	GRADE_COLON_CANCER_UP	PUJANA_ATM_PCC_NETWORK	Entrez	Source	description
GAPDH											S	s	glyceraldehyde-3-phosphate dehydrogenase
HSPA8											S	S	heat shock 70kDa protein 8
PABPC1											ક	s	poly(A) binding protein, cytoplasmic 1
ATP1A1											ક	s	ATPase, Na+/K+ transporting, alpha 1 polypeptide
PSEN1											ક	s	presenilin 1 (Alzheimer disease 3)
KRT8											ક	S	keratin 8
RPL19											ક	s	ribosomal protein L19
ERGIC3											8	s	ERGIC and golgi 3
SENP5											ક	s	SUMO1/sentrin specific peptidase 5
MAL2											ક	s	mal, T-cell differentiation protein 2
MALAT1											ક	s	metastasis associated lung adenocarcinoma transcript 1 (non-coding RNA)
A2M											ક	s	alpha-2-macroglobulin

A análise por famílias gênicas:

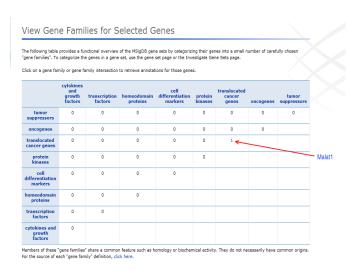
Genes no tecido normal:

	categorize th	e genes in a gene	set, use the gene	e sets by categoriz set page or the Inv	estigate Ge		umber of caref	ully chosen	
ick on a gene far	mily or gene to	amily intersection	to retrieve annotat	ions for those gene	s.				
	cytokines and growth factors	transcription factors	homeodomain proteins	cell differentiation markers	protein kinases	translocated cancer genes	oncogenes	tumor suppressors	
tumor suppressors	0	0	0	0	0	0	0	0	
oncogenes	0	0	0	0	0	2 ←	2		
translocated cancer genes	0	0	0	0	0	2			COL MYF
protein kinases	0	0	0	0	0				
cell differentiation markers	0	0	0	0					
homeodomain proteins	0	0	0						
transcription factors	0	0							
cytokines and growth factors	0								

Genes comuns aos dois tecidos:

								_	
ene families". To	categorize the	e genes in a gene	set, use the gene	e sets by categorizi set page or the Inv ions for those gene	estigate Ge		umber of caref	ully chosen	
	cytokines and growth factors	transcription factors	homeodomain proteins	cell differentiation markers	protein kinases	translocated cancer genes	oncogenes	tumor suppressors	
tumor suppressors	0	0	0	0	0	0	0	0	
oncogenes	0	0	0	0	0	0	0		
translocated cancer genes	0	0	0	0	0	0			
protein kinases	0	0	0	0	0				
cell differentiation markers	0	0	0	1					CEACAM
homeodomain proteins	0	0	0						
transcription factors	0	0							
cytokines and growth factors	0								

Genes no tecido tumoral:



Análise: No tecido normal encontramos da família de oncogenes e "translocated cancer genes" COL1A1 e MYH11, no tecido o gene CEACAM5 da família de marcadores de diferenciação celular e no tecido tumoral o gene MALAT1 da família "translocated cancer genes" e os genes GAPDH, HSPA8, RPL19 e ERGIC3 que são conhecidos por "up-regulated" genes relacionados ao câncer de colon.