

**Exercise 6: Designing a Primer (Due Feb 12st, before class)**

In this exercise you will design a set of primers to do PCR of a gene sequence. Two genes human have been assigned to each person. **You need to use only one gene.** However, two genes are provided just in case one of them is difficult to investigate.

**Required work:**

1. Give the chromosome location of the gene
2. Download the gene sequence. There may be many sources for this sequence so it is important to write down the 'search map' on how to get to the sequence that you use.
3. Design a primer set that produces an amplicon between 100- 200 b.p. long
4. Provide the starting sequences, the actual amplicon lengths, the melting points, the gc contents.
5. Indicate in the template sequence where exactly the two primers hybridize.

<b>Top hits of the gene products (proteins) that are 'downregulated' after sulfoximine butoxide (Glutathione synthesis inhibitor)</b>				
<b>Person</b>	<b>Gene 1</b>	<b>Description 1</b>	<b>Gene 2</b>	<b>Description 2</b>
Bishop,Craig	MRPL22	mitochondrial ribosomal protein L22	CCBL1	cysteine conjugate-beta lyase; cytoplasmic (glutamine transaminase K, kyneurenine aminotransferase)
Chen,Li	GRPEL2	GrpE-like 2, mitochondrial (E. coli)	TMEM33	transmembrane protein 33
Dozier,Jon	NUP155	nucleoporin 155kDa	BUD31	BUD31 homolog (yeast)
Frost,Nic	SERPINF1	serpin peptidase inhibitor, clade F (alpha-2 antiplasmin, pigment epithelium derived factor), member 1	MRPL48	mitochondrial ribosomal protein L48
Jing,Meng	DCI	dodecenoyl-Coenzyme A delta isomerase (3,2 trans-enoyl-Coenzyme A isomerase)	C14ORF21	chromosome 14 open reading frame 21
Lin,Yu-Shen	HABP4	hyaluronan binding protein 4	DDX42	DEAD (Asp-Glu-Ala-Asp) box polypeptide 42
Maurer-Jones,Melissa	PRPF38A	PRP38 pre-mRNA processing factor 38 (yeast) domain containing A	LMOD2	leiomodoin 2 (cardiac)
Ochocki,Josh	MAP1A	microtubule-associated protein 1A	C1QBP	complement component 1, q subcomponent binding protein
Olson,Eric	PLCB4	phospholipase C, beta 4	PRAF2	PRA1 domain family, member 2
Satori,Chad	GLTP	glycolipid transfer protein	TYMS	thymidylate synthetase
Sheng,Yixiao	NEK7	NIMA (never in mitosis gene a)-related kinase 7	ACOT7	acyl-CoA thioesterase 7
Wettlaufer,Courtney	THOC7	THO complex 7 homolog (Drosophila)	GTPBP6	GTP binding protein 6 (putative)
Wolken,Greg	FARS2	phenylalanyl-tRNA synthetase 2, mitochondrial	BXDC1	brix domain containing 1
Zhang,Jing	ZYG11B	zyg-11 homolog B (C. elegans)	C4ORF14	chromosome 4 open reading frame 14
Lesaja, Anja	SLC7A1	solute carrier family 7 (cationic amino acid transporter, y+ system), member 1	GPX1	glutathione peroxidase 1