Instructor's guide to Exercise 1

In exercise 1, students predict the ability of *met* mutants to grow on various media in the table below. YPD is a rich, but undefined, medium that contains all the nutrients required for yeast to grow. YC Complete is a synthetic medium that contains all the nutrients required for BY4742 (*MATα his3Δ1 leu2Δ0 lys2Δ0 ura3Δ0*) to grow.

Ask students which nutrients are required to grow. They should note that BY4742 has several auxotrophies and will require media containing histidine, leucine, lysine and uracil. The strains are *met* mutants, so they xill also require methionine to grow.

BiGGY agar plates are used to detect sulfide production. Although sulfite is the major sulfur source in BiGGY, BiGGY also contains yeast extract which contains enough methionine to support growth of *met* mutants. BiGGY also contains a small amount of sulfate, which yeast prefer to sulfite as the sulfur source. Consequently, parental strains grown on BiGGY use both sulfur sources. Mutants in the early sulfate assimilation steps (*met3*, *met14* and *met16*) are able to use only sulfite and will appear lighter than the parental strain. The strains with the lightest color are *met5*, *met10*, *met1*, and *met8,* because these strains lack active sulfite reductase. Consequently, these strains are unable to produce any sulfide.

	YPD	**YC Complete**	**YC - Met**	**YC-Met +Cys**	**YC-Met +SO_3**	**BiGGY**
met3	+	+	-	+	+	down
met14	+	+	-	+	+	down
met16	+	+	-	+	+	down
met5	+	+	-	+	-	down
met10	+	+	-	+	-	down
met1	+	+	-	+	-	down
met8	+	+	-	+	-	down
met2	+	+	-	-	-	up
met17	+	+	-	+	-	up
met6	+	+	-	-	-	up
met7	+	+	-	-	-	up
met13	+	+	-	-	-	up