

A comment about strain names

There is a lot of confusion about how to name strains when communicating results. The confusion arises because we freeze away strains containing plasmids and give them a new name. However, the name given to that frozen culture is for convenience and internal use only. We have to communicate strain names to the outside world in a formal way. And, we need to use formal names in manuscripts, reports and theses.

For example, we have frozen away in our strain collection “MEC682”

MEC682 is MG1655 *pgi glgC::Kan/pTrc99A-hasA*

MG1655 *pgi glgC::Kan* is in our strain collection as MEC527.

So, MEC682 could also be called MEC527/*pTrc99A-hasA*

MEC682 has knockouts in the *pgi* and the *glgC* genes. The *glgC* gene knockout has been replaced with a kanamycin cassette, resulting in MEC682 being resistant to kanamycin in the medium. MEC682 also contained the plasmid *pTrc99A-hasA*, which expresses the *hasA* gene.

Sometimes we write an equal sign to indicate equivalence:

MEC682 = MEC527/*pTrc99A-hasA* = MG1655 *pgi glgC::Kan/pTrc99A-hasA*

Strictly speaking, a strain is defined by the genomic DNA. In other words, the “strain” part of MEC682 is MEC527 = MG1655 *pgi glgC::Kan*. Thus, this microbe should really be referred to as MEC527/*pTrc99A-hasA* or MG1655 *pgi glgC::Kan/pTrc99A-hasA*. The name MEC682 is *only for internal use when we are recovering it from the freezer*. The name is really only used because we have frozen away this construct with the plasmid, and in our collection we obviously have distinguish it from MEC527 which does not have the *pTrc99A-hasA* plasmid. Even in discussions internally, the name MEC682 should not be used. The strain should always be called **MEC527/pTrc99A-hasA**.

Moreover, like most strains in our collection, MEC527 was constructed using the Keio collection/protocol. These strains have more complete names. The complete name for MEC527 is actually MG1655 Δ *pgi-721::*(FRT) Δ *glgC763::*Kan. The delta indicates that the gene is removed. The numbers are to describe the specific mutation as denoted by the researchers who constructed the original strains, and the “(FRT)” indicates that an FRT scar has been left in the place of the gene that was removed.

Writing MG1655 Δ *pgi-721::*(FRT) Δ *glgC763::*Kan every time you want to refer to that strain is impractical. In a manuscript or thesis, you should construct a table showing all the strains and their names. Usually the first column is “strain” and the second column is “genotype”. In such a table MEC527 will be the strain name, and MG1655 Δ *pgi-721::*(FRT) Δ *glgC763::*Kan will be the genotype. Within the text of the manuscript, when describing this strain having the *pTrc99A-hasA* plasmid, you should identify it as MEC527/*pTrc99A-hasA*. If you want to remind the reader or audience that this strain had two specific knockouts, then you could refer to it as MG1655 *pgi glgC::Kan/pTrc99A-hasA*.