New GMO

Hello CTMers, please read the below and attached pdf how to upgrade our “plasmids” table and list of cell lines for us to work with GMO.
Tables link.
Please have a look at it and try to upgrade the table.
I would like to review how is it going and update the instructions in case somebody hits a problem on thursday so that we have the table ready next tuesday.
Thank you very much for your cooperation.

Vladimir

PS The application can be upgraded at any time so I suggest we focus on the the most important stuff first, and we will do another round of GMO when we settle in (September)

Background

The essence is to assess the danger of each combination of a new host where new genetic material was introduced. SO in the table we need to link the construct/vector/plasmid with cell line(s) bacterial line to generate the assessments.

In general, we have four ways how we work with plasmids and cell lines and accompanying risks:

1. I have a plasmid and want to amplify:.

`Plasmid + Bacteria = GMO Bacteria` => Danger of GMO Bacteria spreading the gene among other bacteria, infection of humans.

2. I have a plasmid, want to transfect my cells with it (plasmid is commercial, or comes from [1]).

`Plasmid + Cell Line = GMO Cell Line` => Danger of GMO cell line infecting human body and causing disease

3. I have a plasmid and want to use it to produce lentiviral particles (plasmid is commercial or coming from [2])

`Plasmid + Cell Line = Viral Particles` => Danger of viral particle transducing human causing disease

4. I have lentiviral particles and want to use them (commercial or coming from [3]):

- `Particles + Cell Line = GMO Cell Line` => Danger of cell getting into human body and causing disease
- `Viral Particles` => Danger of viral particle transducing human causing disease

What we need to know to match them together:

1. Plasmid name (You get from addgene, publication)
2. Name of the the new gene introduced [1]
3. Donor organism of the gene
4. Function of the gene [2]
5. Genetic modification(s) of the gene [3]
6. Risk associated with the introduction of the gene [4]
7. Backbone of the vector carrying the transferred gene

[1] Name of the cloned protein (As written in the gene cards)
[2] As written in the gene cards).
[3] Mutation, Overexpression, Deletion, does not have to be specific down to each nucleotide
[4] Basically reverse of the gene function: ie tumor supressor => increased tumorigenesis

8. Selection marker in the bacteria (resistence of the vector) [5]
9. The host organism [6]

- **Workflow 1**: Strain of Bacteria
- **Workflow 2&3**: Cell line
- **Workflow 4**: Cell line

In addition we need more info to this easier for managment:

1. **numberID** (Mandatory both plasmids and hosts), we will use this number to match Vectors and Cell lines together.
2. **Group** (Mandatory). The plasmids/hosts without assigned group will be omitted from the first round of application. In case more groups own the plasimd, separate the groups by semicolon `;`
3. **Owner** (Optional), Initials of person from the group, in case we need to communicate and fix something.
4. **Catalougue number/Source** (Mandatory). To be able to check the details of the construct in case of more detail
   - Catalogue number and then source (#51941/ addgene)
   - If from collaborator/Publication (doi:….)
5. **Host** (Mandatory), write `;` separated numberIDs of hosts from the `Hosts` sheet [7].
6. ** Viral Particles/System **

How to fill in the table(s):

All the plasmids and cell lines (hosts) are accesible at this link.
The columns which need to be filled in are labelled in red.
Please do not delete, or insert any lines/vectors in the middle of the table, just keep adding to the end of the file, I will filter out the plasmids and cell lines which are not claimed by any group at the end.

Plasmids/Hosts sheet

[5] Ampiciline, Kanamycine etc.
[6] The list of our current cell lines and bacteria is in this google sheet
[7] Ie if the plasmid is amplified in bacteria(1), used to produce viral particals in HEK (11), and then used to transduce C2C12(9), H9C2(10) and IPSC(2) cells write: `1;11,9;10;2` in 'Host