Production and characterisation of virus-like particles as vaccine candidates

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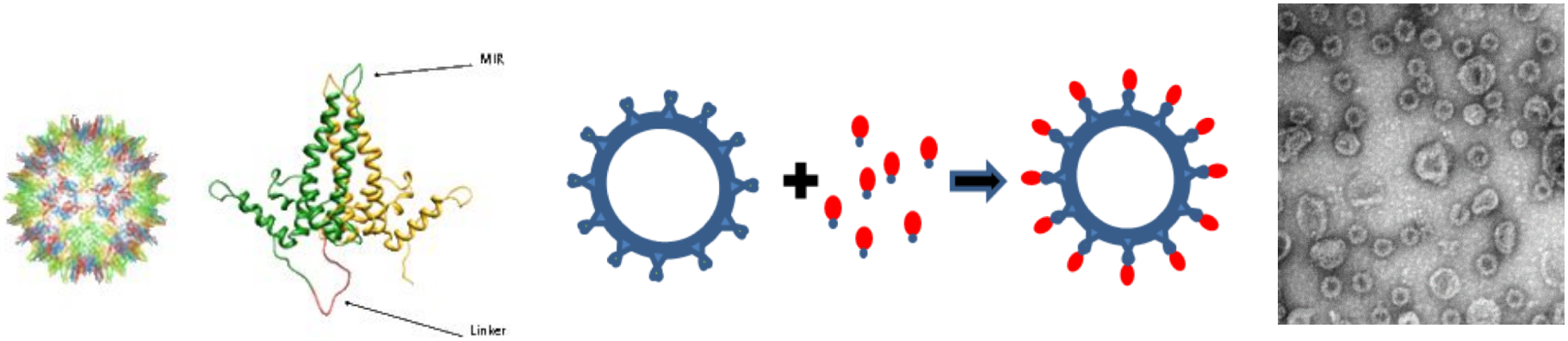
Two strategies for the production of VLP vaccines…

1 – A scaffold system, that is then decorated by antigens of interest

2 – Modified virus particles

Use of a modified hepatitis B virus core system as a generic antigen display platform

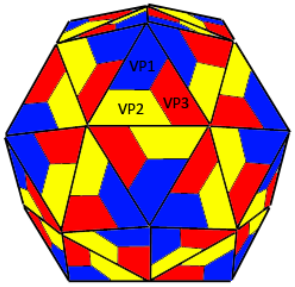


Allows presentation of glycoprotein fragments e.g. gp1 from Junin virus
Allows rapid response to emerging diseases?

But may not work for complex antigens

i.e. if antigenic sites can span protein-protein interfaces

Dave Rowlands and Darren Tomlinson, Leeds; Tom Bowden, Oxford

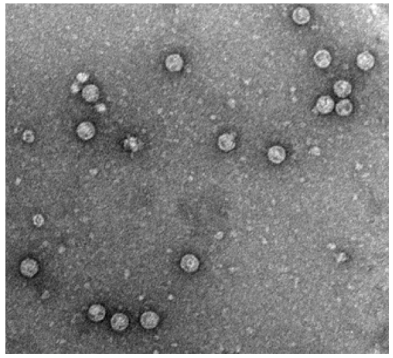


VLP vaccines for polio, HFMD etc

Why do we need vaccines?

Empty particles are naturally produced during virus lifecycle -
But are antigenically unstable

Express stabilised structural proteins as a polyprotein together with viral protease
Plant, insect, mammalian, **yeast cells**



VLPs that perform at least as well as current polio vaccines in immunogenicity expts in animal models

Rowlands/Stonehouse, Leeds; Stuart/Fry Oxford, Jones, Reading, Macadam, NIBSC, Tuthill, Pirbright

World Health Organization

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