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**PREVENTING SEXUAL TRANSMISSION:
MAPP66, A MULTI-PURPOSE VAGINAL MICROBICIDE**

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BACKGROUND

Because unsafe sex is one of the highest risk factors for disability and death worldwide there is an urgent need to develop safe, effective, and accessible *multi-purpose* technologies. Because of their versatility and specificity, monoclonal antibodies (Mabs) are appealing for multi-purpose microbicides.

METHODS

The magnification transient expression system (Icon Genetics/Bayer) is a fast, scalable and economical approach to high-level production of Mabs in *Nicotiana benthamiana*.

RESULTS

Mabs for sexual and reproductive health (SRH) were expressed in *N. benthamiana* are: (a) HSVgD Mab-N (binds glycoprotein D of HSV); (b) CCR5 Mab-N (an inhibitor that blocks HIV's use of CCR5 as a co-receptor for viral entry); (c) b12 Mab-N (binds gp120 on HIV); (d) CD52g Mab-N (agglutinates sperm). The SRH Mabs were produced aglycosylated, with conventional plant glycans, and in a transgenic line with xylosyltransferase and fucosyltransferase knocked out, resulting in mammalian-like glycosylation patterns.

CONCLUSIONS

Human SRH Mabs to pathogens and sperm have been produced in *Nicotiana* using the magnification system. Now that a large scale, cost effective cGMP manufacturing system is in place, IND-enabling rabbit vaginal irritation studies and Phase 1 safety trials can be conducted.