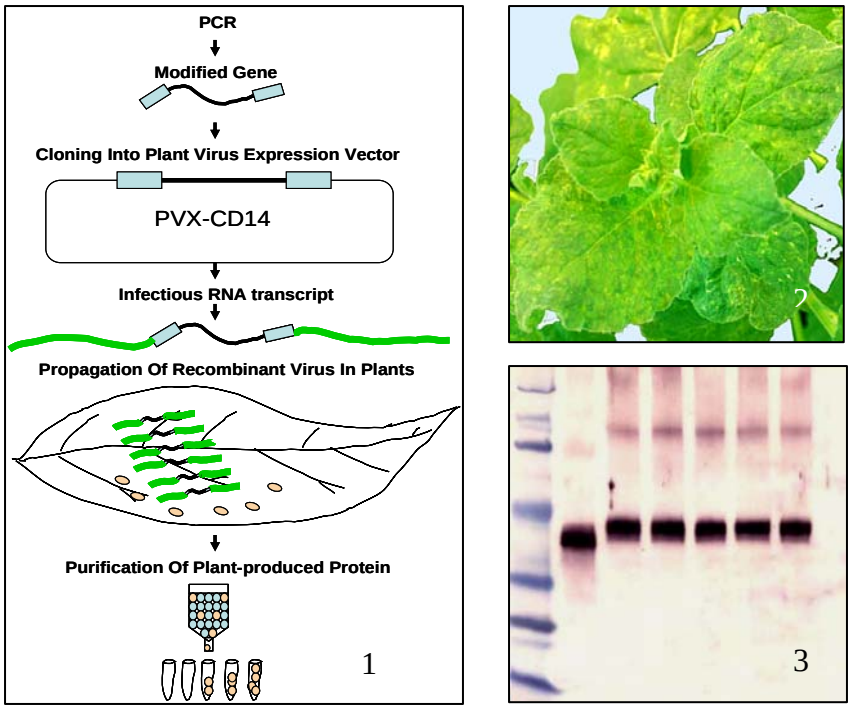
Bovine CD14 receptor produced in plants reduces severity of intramammary bacterial infection

The CD14 antigen is a high affinity receptor for the complex of bacterial lipopolysaccharide (LPS) and LPS-binding protein in animals. When injected into the udder, it is able to reduce the inflammation caused by bacterial infection. We inserted the CD14 gene into a plant virus, which then produced the protein in virus-infected plants. When purified plant-produced protein was tested in a cell assay and by injection into udders, it functioned in the same manner as the naturally occurring milk protein.



Expression of bovine CD14 LPS receptor in plants.
1. Schematic drawing of the CD14 production in plants. **2**, *Nicotiana benthamiana* plants inoculated with recombinant PVX virus containing CD14 gene. **3**. Western blot of plant-derived purified CD14 protein probed with CD14-specific antibodies

Nemchinov L.G., Paape, M., Sohn, E.J., Bannerman, D., Zarlenga, D., and Hammond, R.W. 2006. Bovine CD14 receptor produced in plants reduces severity of intramammary bacterial infection. FASEB Journal, July 20(9):1345-51.