

Development of an Immunocontraceptive for Wild Pigs

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Definitions

Contraceptive: An agent that serves to inhibit or prevent pregnancy.

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Immunocontraceptive: An agent that uses the bodies natural immune system to prevent pregnancy.

Contraceptives for Wildlife

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- Since then, contraceptives have been developed for many other species.
- What is needed is a “man-power light” contraceptive.



Contraceptives must be....

1. Orally-administered



Contraceptives must be....

1. Orally-administered
2. Species-specific



Contraceptives must be....

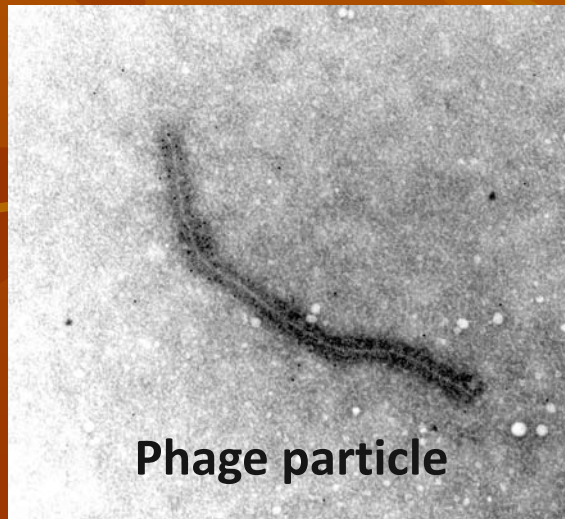
1. Orally-administered
2. Species-specific

- To date, no oral, species-specific contraceptive has ever been developed.



Phage-display Technology

- **Phage-display library:**
mixture of billions of genetically-engineered peptides (proteins)

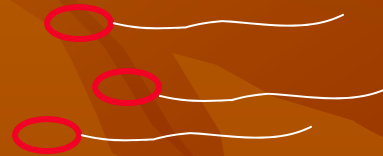


Basic Reproduction



oocyte

+



sperm cells

=



sperm cells
bound to oocyte

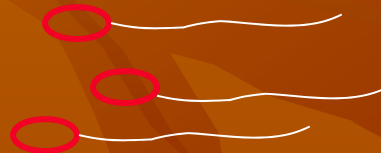
Sperm-oocyte binding

Our Approach



oocyte

+



sperm cells

=



sperm cells bound to oocyte

Sperm-oocyte binding



oocyte

+



Phage-display peptide library

=



peptide bound to oocyte (sperm mimic)

Peptide-oocyte binding

Our Approach



Anti-sperm antibodies in humans:

- cause infertility, 30%
- long lasting condition
- difficult to treat

Procedures

1. Ovary collection

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2. Oocyte isolation

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3. Identification of peptides from phage library

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4. Immunogenicity studies in animals

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5. Fertility trials in animals

Procedures

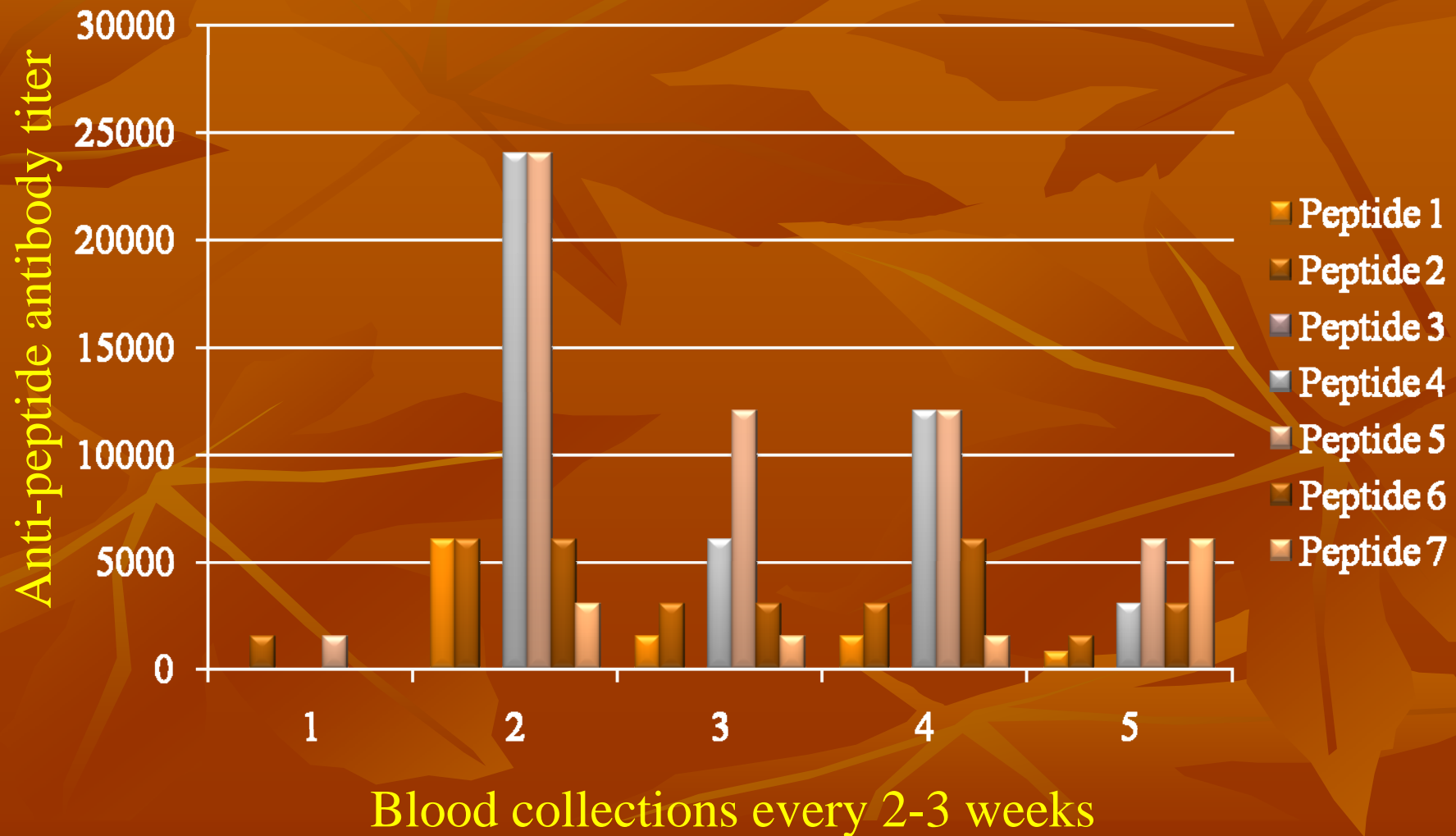
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Immune Response to Peptides

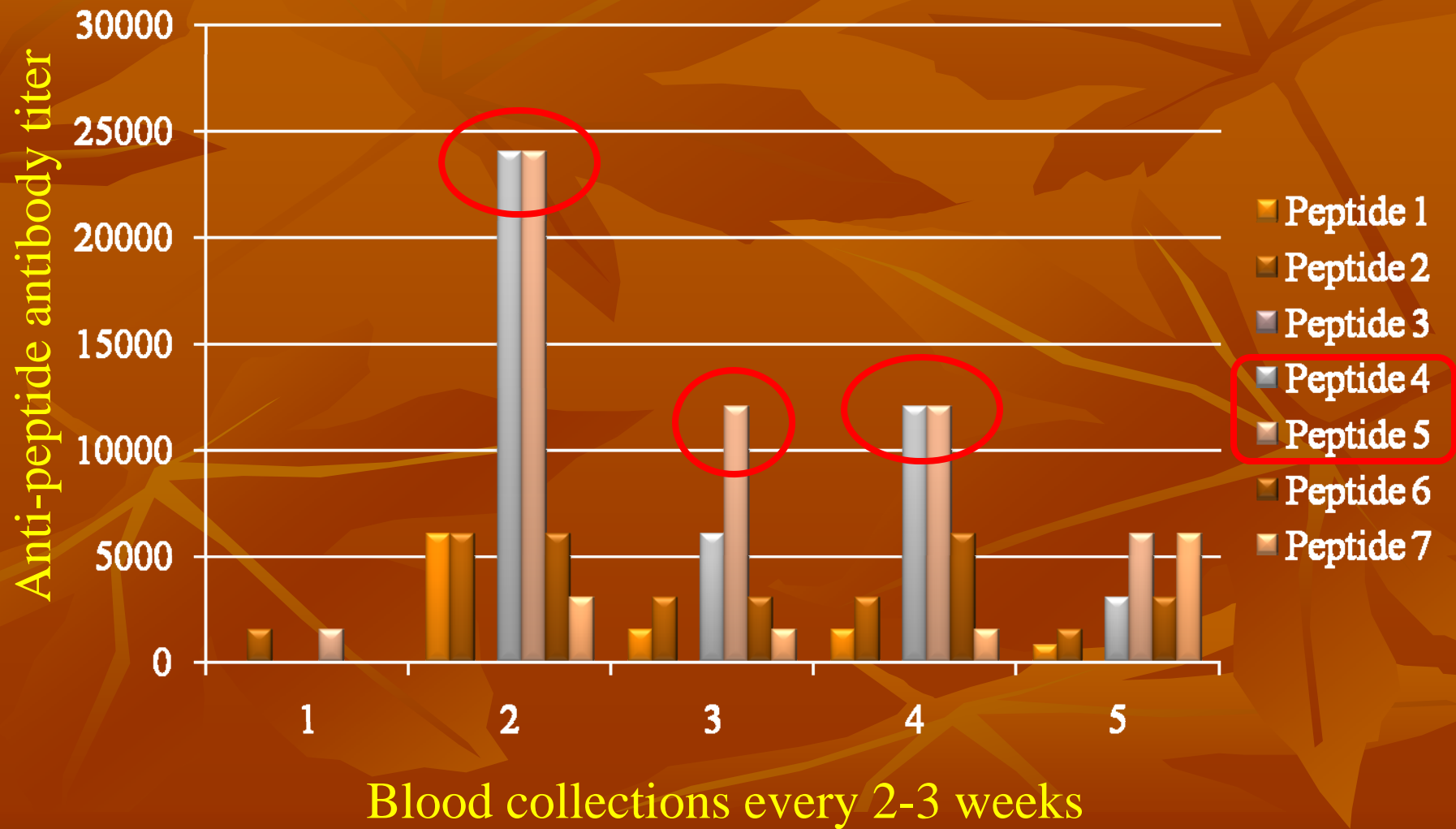
- Peptide immunogenicity
- 7 pigs immunized (1 pig/peptide)
- 2 boosters
- Blood collected every 2-3 weeks
- Immunological responses measured



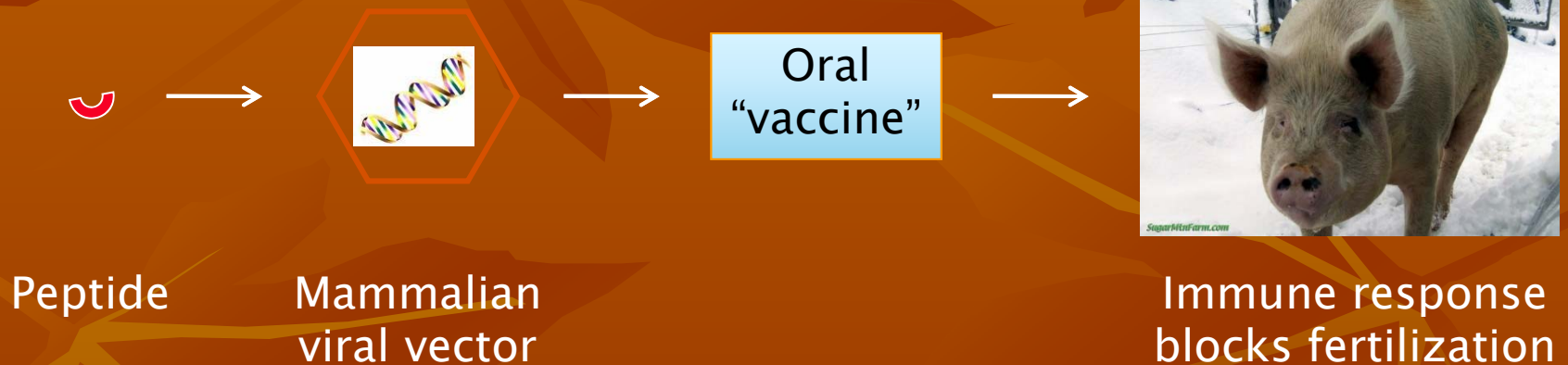
Immune Response to Peptides



Immune Response to Peptides



The Final Product



Note: this design is similar to existing oral anti-rabies vaccines for wildlife.

Questions?

