East Coast fever Vaccine Frontier Research Project

ILRI, TIGR, Ludwig Cancer Institute (Belgium), University of Edinburgh, University of Oxford, Merial, UK-DFID

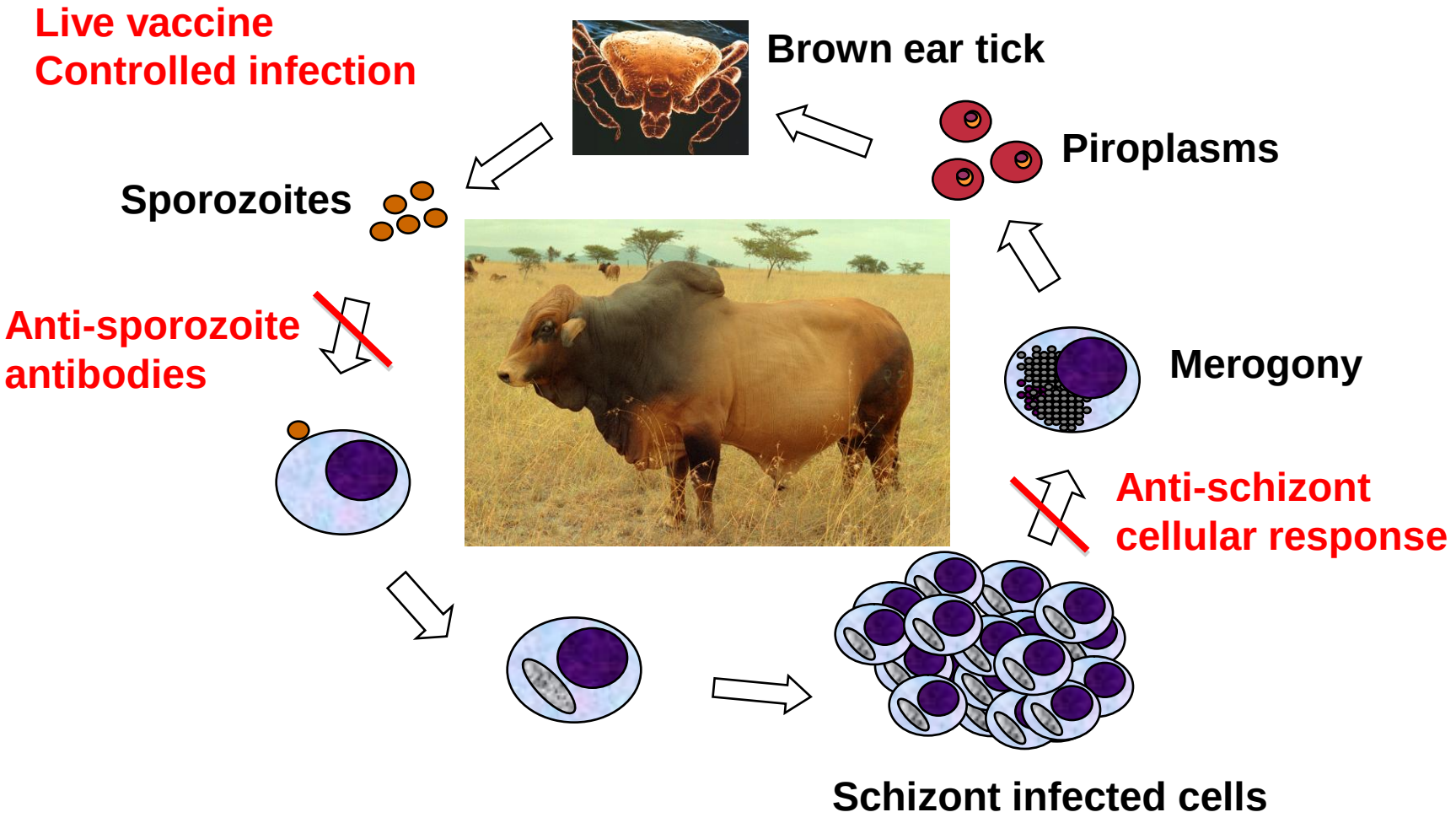
Frontier Research Project

Poor success in developing vaccines to induce cell-mediated immunity

Research Objectives

- Identify parasite antigens recognized by CD8 cells
- Prepare vaccine constructs and assess immunogenicity
- Test protection against challenge

T.parva vaccine research portfolio



Partners and Main Interests

DFID-UK

- Leadership in brokering / funding research innovation for development

ILRI

- Previous investment in basic biology
- Exploit new technologies
- Demonstrate research contribution to development

TIGR

- Genomics approaches can contribute to vaccine research

Merial

- Interest in future products for tropical animal health portfolio
- Access to science expertise to inform vaccine development

Project management

Funding and project oversight (DFID)

- grant to ILRI (UK£ 5 million over 4 years)
- semi-annual project review (management and technical) to agreed project milestones updated semi-annually

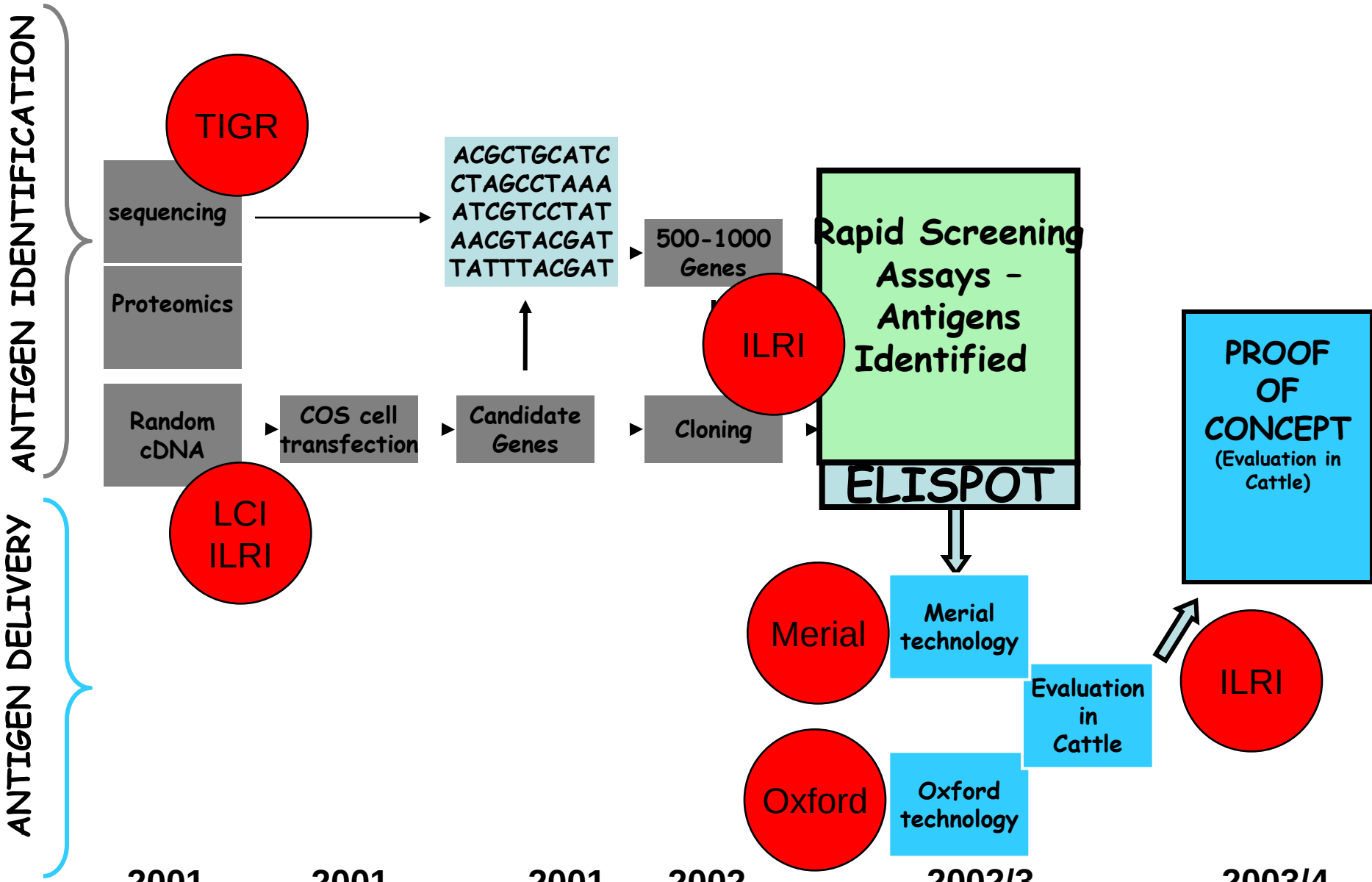
Overall project management (ILRI)

- planning, coordination (weekly teleconferences, semi-annual team meetings), communication, milestone management, subgrants

Management of components (Partners)

- Internal management with reporting to ILRI manager
- Major in-kind contributions (TIGR/ILRI, Merial)

ECF VACCINE RESEARCH STRATEGY - ROLES



Milestone management

- Joint planning and agreement on milestones coordinated by ILRI and agreed by DFID
- Overall objectives and milestones maintained but details adapted during regular team meetings (every 6 months)
- Close interaction between oversight and management teams
- Specific stop-go criteria agreed in advance

Partnerships, Confidentiality and IP

Partnership and confidentiality agreements

- Partnership agreements and confidentiality agreements
- Early confidentiality agreement between ILRI and Merial (pre-project) to explore interests
- Initial challenges in practice trust and culture between public and private – overcome over the project
- Exclusivity of commercial relationship with Merial during project period

Intellectual Property

- Public antigen discovery IP captured through patents held by public partners with support from Merial
- Any vaccine product IP resulting would be held by Merial in discussion with public contributors pending research results.

Project Outputs and Outcomes

- Sequence of T. parva, 10 candidate antigens that induce cell-mediated immune responses
- Better and faster approaches to antigen identification for cell-mediated immunity established (and used by others)
- Enhanced research management culture in ILRI and establishment of joint innovation in the partnership
- “Proof-of-concept” vaccine constructs
  - Correlates of cell-mediated immunity consistently demonstrated
  - Protection against lethal challenge when cytolytic cellular responses demonstrated
  - Cytolytic responses inconsistently induced (30%)
- No vaccine constructs provided agreed protection (stop to further commercial development)

Next Steps and Issues Arising

- **ECF vaccine portfolio**
  - ILRI in partnership with GALVmed and others pursuing a market access partnership for live vaccine (ILRI produces the vaccine)
  - Sporozoite vaccine pending (Intervet)

- **Open innovation approaches / platforms**
  - Issue of exclusivity (R-D stage,
  - “Interest” among public and private partners in more open collaboration around early stages of vaccine research (EU technology platform)
  - ILRI convened meetings of public and private partners to develop a concept note

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