Cancer Vaccine Clinical Trial Working Group

Final Workshop, 10 November 2005

Cancer Vaccine Consortium
SABIN VACCINE INSTITUTE
www.sabin.org/cv_consortium.htm

International Society for Biological Therapy of Cancer
SBT

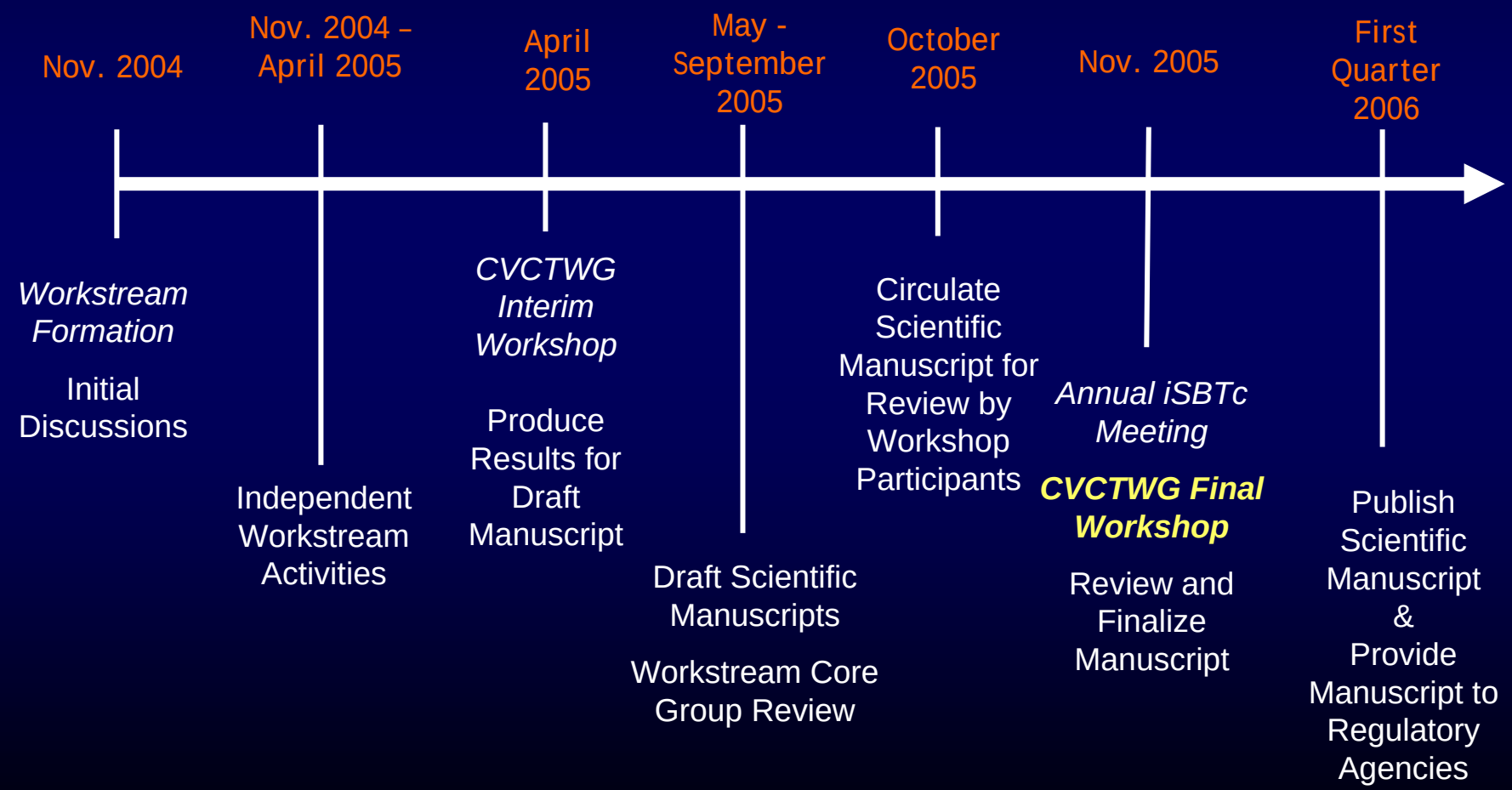
CVCTWG Issues

- Cancer vaccines have unique developmental challenges.
- Some potential solutions exist.
- Not all potential solutions are widely understood.
- No consensus exists on potential solutions.
- No formal recommendations for a flexible and adequate clinical development path exist.

CVCTWG – The Initiative

- Collaborative Spirit
- Broad Expertise Contributed to Discussions:
  - Academic Leaders
  - Biotechnology/Pharmaceutical Drug Developers
  - Regulators
- > 60 International Participants
- Extensive Discussions in 4 Broad Areas
- Consensus Reached on Scientific Recommendations to Advance the Field of Cancer Vaccine Development

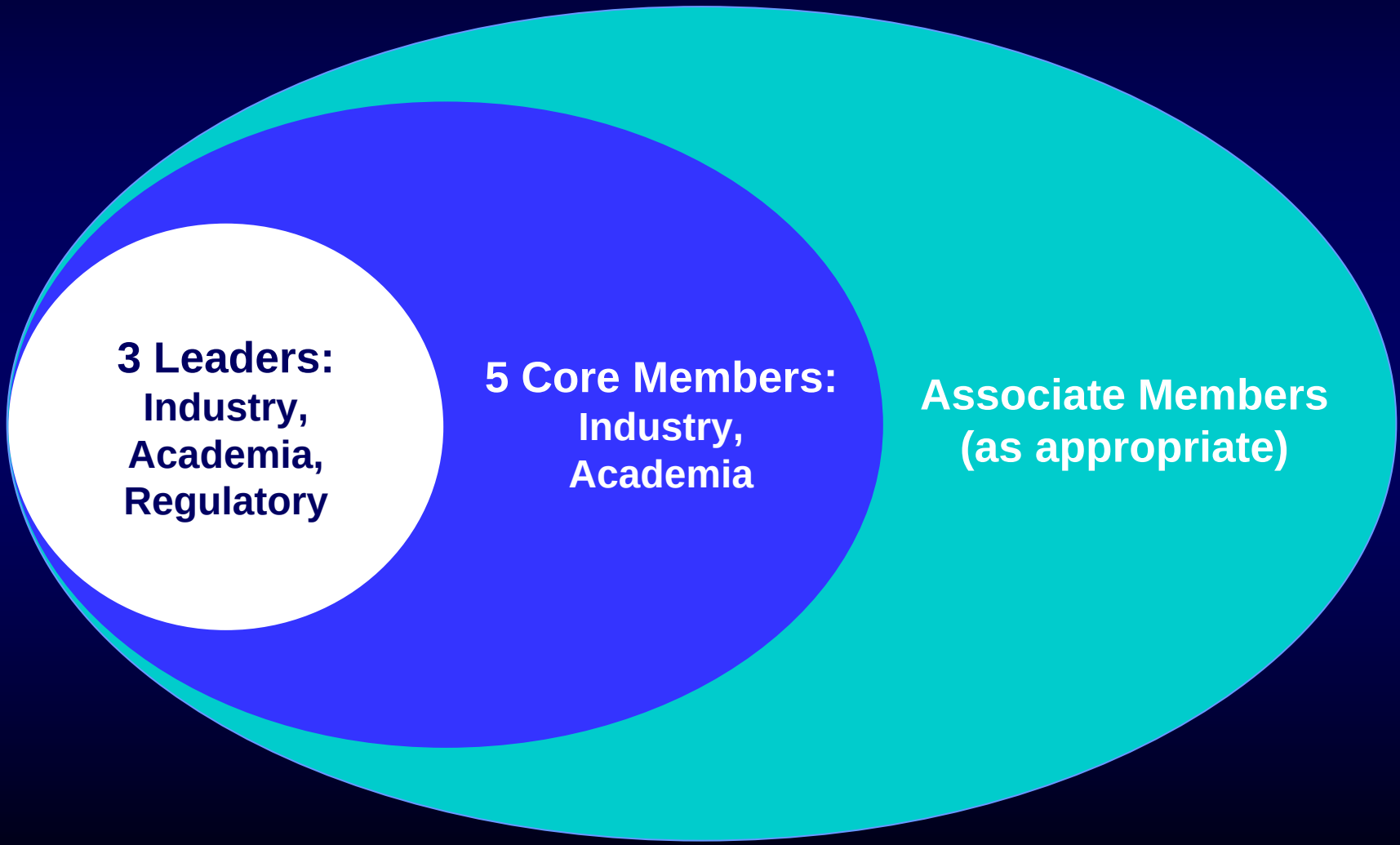
CVCTWG – Timelines 2004-2006



CVCTWG Workstreams

1. Clinical Endpoints to Support Product Efficacy
2. Design Methodologies for Cancer Vaccine Trials
3. Technical Challenges in Cancer Vaccine Trials
4. Enabling Technologies and Combinations of Investigational Agents

Workstream Participants



CVCTWG – Workshop Faculty

• Giorgio Parmiani	Istituto dei Tumori, Milan	WS1
• Hans Loibner	Independent	WS1
• Peter Bross	CBER, FDA	WS1
• Axel Hoos	Bristol-Myers Squibb	WS2
• Alexander Eggermont	University of Rotterdam; EORTC	WS2
• Steven Hirschfeld	CBER, FDA	WS2
• Kristen Hege	CellGenesys	WS3
• Walter Urba	Earle Chiles Research Institute	WS3
• Keith Wonnacott	CBER, FDA	WS3
• Geoffrey Nichol	Medarex	WS4
• Mario Sznol	Yale University	WS4
• Ke Liu	CBER, FDA	WS4

CVCTWG Overall Goal

Provide a comprehensive scientific summary of critical issues for cancer vaccine clinical development and proposed solutions based on consensus between a wide number of experts representative for the cancer vaccine field.

Program Schedule, November 10, 2005

- 8:00am-8:30am — Welcome & Introductions
- 8:30am-10:30am — Development of Cancer Vaccines: 5 Perspectives from Academia and Industry
- 10:45am-12:30pm — Summary of Issues and Goals: Results of 4 Workstreams
- 12:30pm-2:45pm — *Parallel Sessions:*
  - 1) State of the Field Lectures:
    - Measuring Residual Tumor Burden
    - Cancer Biometrics – Results from 2003 iSBTc Workshop
    - Bayesian Designs for Early Trials
  - 2) 4 Workstream Breakout Sessions
- 2:45pm-3:15pm — FDA Special Lecture
  - FDA Perspective on Preclinical Development of Cancer Vaccines
- 3:30pm-5:30pm — 4 Breakout Session Reports & Discussions
- 5:30pm — Future Plans

Welcome !

Back-up

CVCTWG Workstream 1:
Clinical Endpoints to Support Product Efficacy

- **Conventional clinical oncology endpoints (measures of benefit)**
- **Discovery, standardization, and validation of surrogate endpoints for clinical benefit**
- **Immunological endpoints**
- **Novel experimental measures of minimal residual disease, such as circulating malignant tumor cells**
- **Other surrogate endpoints**

CVCTWG Workstream 2:
Design Methodologies for Cancer Vaccine Trials

- **Adaptive trial designs for Phase 2 and 3 development and novel statistical approaches**
- **New standards/designs for Phase 1/2 trials versus Phase 3 trials**
- **Bridging the gap between Phase 2 and Phase 3 development**
- **Pivotal trial designs for autologous products**
- **Endpoints for early trials: toxicity, biological activity, clinical activity**
- **Surrogate endpoints (correlative tests and imaging) for clinical activity in early trials**
- **Designs for combination Phase 1 trials**
- **Results criteria for advancing to surgical adjuvant trials**
- **Standardization of study conduct and outcome review**

CVCTWG Workstream 3:
Technical Challenges in Cancer Vaccine Clinical Trials

- **Criteria for entering clinical development**
- **Product standardization and characterization for individualized vaccines**
- **Dose selection for early trials of cancer vaccines**
- **Definition of biological activity and biologically relevant clinical response parameters for early and late stage trials**
- **Patient selection (antigen expression, MHC expression, immune competence, others)**
- **Immunophenotyping and genotyping guidelines**
- **Funding issues**

CVCTWG Workstream 4:

Enabling Technologies and Combinations of Investigational Agents

- Identification of key therapeutic agents (ie, cytokines, antibodies to cell surface co-stimulatory molecules, small molecules targeting immunologic signaling pathways)
- Regulatory issues (toxicology, IND requirements, registration) for combinations of investigational agents
- Intellectual property issues for combinations
- Phase 1 trial issues (endpoints, design, proof-of-concept, patient selection, tumor tissue typing, etc.)
- Later-stage development issues
- Funding for correlative studies

CVCTWG – Steering Committee

Steering Committee Members

Neil Berinstein	Aventis
Alexander Eggermont	EORTC
Guy Ely	BioMira
Steven Hirschfeld	FDA
Axel Hoos	Antigenics
Ulrich Keilholz	iSBTc
Hans Loibner	Independent
Kim Lyerly	Duke University
Geoffrey Nichol	Medarex
Giorgio Parmiani	Istituto dei Tumori
Howard Streicher	NCI, CTEP
Mario Sznol	Yale University

CVC & iSBTc Officials

Michael Atkins	iSBTc
David Bedell	CVC
Susan Geiger	CVC
Herman Shepherd	CVC
Tara Withington	iSBTc