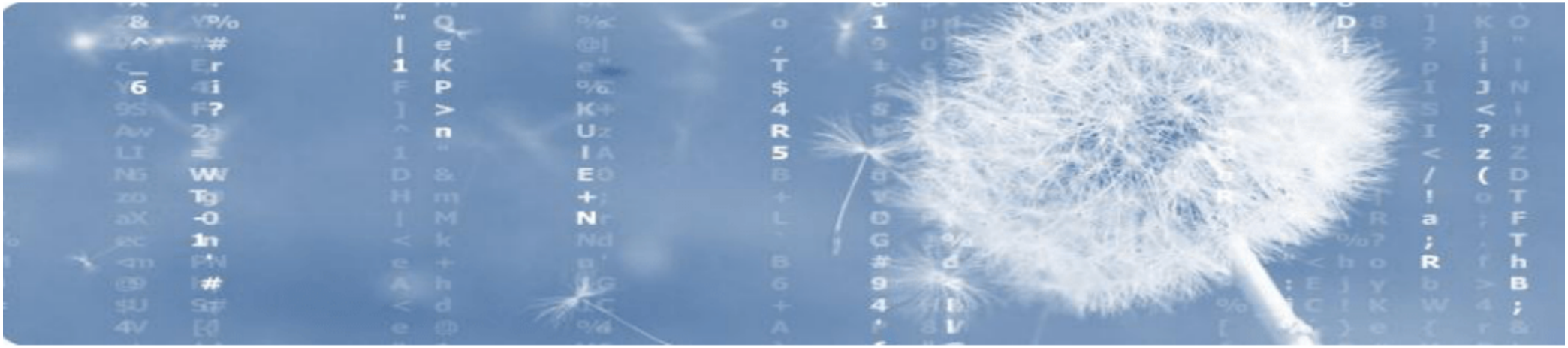

OSE Pharma

Severe Orphan Lung Diseases

Dominique Costantini, M.D
CEO
&
Emile Loria, M.D.
Chairman

Corporate Presentation

February 2013

OSE Pharma Investment Thesis

Substantial late stage clinical assets:

Phase 3 study for advanced lung cancer (NSCLC): targeted cancer immune therapy

100M$ Epimmune investment from R&D to the completed Phase IIb

Phase 2 study for Cystic Fibrosis: re-profiling existing drug with safety package

Experienced team with solid track records

Emile Loria, M.D., Former Epimmune Pres & CEO

Dominique Costantini, M.D., Former BioAlliance founder & CEO

More than 100M€ raised publicly with approved EU/US products

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OSE Pharma Investment Thesis

1st round to be raised: 5M€ plus commitment to 10% IPO

GMP Material for phase 3

FDA /EMA Protocols acceptance

Orphan designations

IPO preparation in 12-18 Months

2nd round to be raised: 20M€ through public market

Clinical Phase 3 execution for Lung cancer (NSCLC : Non Small Cell Lung Cancer)

Clinical Phase 2 execution for Cystic Fibrosis («mucoviscidose» a genetic disorder)

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OSE Pharma Market opportunity : €1.4B

OSE 2101 targeted cancer immune therapy:

EUROPE HLA A2 positive NSCLC: 123 000 Pts

Peak Market share 15% : 18 450 Pts (cost 45 K€ to 50K€)

OSE 2101 Market Estimate **€1B**

0SE1101: molecule for Cystic Fibrosis

EU & US Cystic Fibrosis Pts: 65 000 Pts

Peak Market share 15%: 9770 Pts (cost 35K€ to 50K€)

OSE1101 Market Estimate: **400M€**

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OSE Pharma assets in late stage products

OSE 2101 Targeted immunotherapy assets:(10 years investments / $100M)

1. R&D Epitopes algorithms definition and selection
2. Original combination of epitopes and analogs (granted PI)
3. Solid Know-how (former Epimmune team: bio batches & GMP site)
4. Up to Phase IIb positive results under US IND
5. Phase II status in colon cancer

OSE1101 reprofiling a molecule previously marketed

1. safety package
2. H4R agonist patent in the US
3. Cystic Fibrosis Patent filed in 2012

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OSE Pharma advanced pipeline

OSE2101: targeted Cancer Immune Therapy

A2+ Lung cancer	Phase III status
A2+ Colon cancer	Phase II status
A2+ Breast cancer	
A2+ Ovarian cancer	

OSE1101: H4R agonist

Cystic Fibrosis	Phase II status

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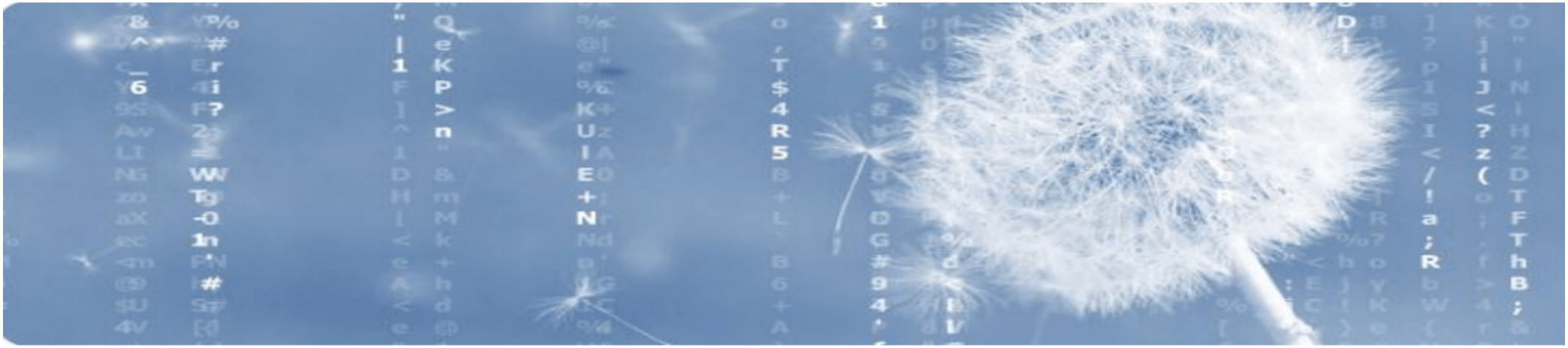

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OSE 2101 PHASE 3 OPPORTUNITY

in

advanced NSCLC

NSCLC: New therapies critically needed

NSCLC treatments insufficiently effective: 5-year survival at 4% for patients with distant disease (Horner et al. 2009)

Active cancer Immunotherapy today: promising new treatments in Phase III

- Cancer vaccines targeting only one Tumoral antigen : i.e. MAGE or MUC in clinical development in first line (or maintenance) treatment in advanced NSCLC
- Ipilimumab Yervoy ® acting on CTLA4 checkpoint (increasing T cell responses) and registered in melanoma / New anti PD1 acting on PD1 checkpoint.

OSE Pharma

NSCLC: New therapies critically needed

NSCLC treatments insufficiently effective: 5-year survival at 4% for patients with distant disease (Horner et al. 2009)

Current therapies registered for advanced NSCLC stages:

Stable disease after 1st line chemotherapy + platinum:

survival ~12 months; 1 year survival at 50% (i.e. erlotinib, permetrexed, gemcitabine, docetaxel..)

Aggressive disease after first line failure:

survival ~8 months; 1 year survival at 33% (2nd or 3rd line) TKI or chemotherapy (i.e erlotinib, docetaxel, permetrexed..)

ALK Inhibitors Crizotinib Xalkory® registered in ALK+ NSCLC pts (3-5% NSCLC pts)

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OSE 2101:Phase III Protocol & Objectives

HLA A2 NSCLC population, open, randomized, multi-center comparative study: 500pts

- Versus reference drug (Treatment of Physician's Choice) after at least failure of first line chemotherapy in locally advanced IIIb or metastatic IV NSCLC patients
- Exclusion criteria:
  - specific mutations EGFR – ALK
- Primary Endpoint: Overall Survival (OS)

  One year survival rate
- Secondary Endpoints: Safety, PFS, QOL

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OSE 2101:Principal Investigators

- **John Nemunaitis,** M.D. Oncology Mary Crowley center, Dallas
  - Principal investigator for Phase II; expertise in numerous cancer vaccine trials

- **Benjamin Besse** , M.D, Oncology Gustave Roussy center, Paris
  - Cancer expertise in numerous cancer vaccine trials; Expert in Lung cancers (ESMO)

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OSE2101 Product Manufacturing

Epitopes	Antigens
LLTFWNPPV	CEA.24V9
YLSGADLNL	CEA.605D6
IMIGHLVGV	CEA.691H5
KVFGSLAFV	HER2.369V2V9
RLLQETELV	HER2.689
YLQLVFGIEV	MAGE2.157
KVAEIVHFL	MAGE3.112I5
KLBPVQLWV	p53.139L2B3
SMPPPGTRV	p53.149M2
aKXVAAWTLKAAa	Thelper PADRE

10 HLA A2 multi-epitopes targeting 5 Tumors Antigens expressed in NSCLC

Mineral oil adjuvant
(Montanide®ISA 51)

EP2101

1. SINGLE VIAL (5MG/ML)
2. 3 year stability of peptide emulsion
3. Manufacturing: Althea, San Diego
4. Subcutaneous Injection

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OSE 2101 Phase II positive results

Stage III-b and IV NSCLC Patients

Design: Open multicenter study : 135 patients

- 64 HLA A2 positive patients received OSE2101(stage IIIb :21; Stage IV: 43)
- 71 HLA A2 negative concurrent control patients (one year survival follow up)
- Inclusion criteria - **Stage III-b and IV NSCLC Patients**
  - ECOG status of ≤ 1; At least 4 weeks from last chemotherapeutic regimen
  - no limit in previous lines treatment (36% received more than 3 previous lines)
  - 6 subcutaneous doses at 3 week intervals, maintenance doses at 3 month intervals
- Immune monitoring (made for 5 of the 10 epitopes)
  - At baseline, week 9, weeks 18, 22, 30, and months 9 and 12
- Primary Endpoints: Safety and overall survival
- Secondary Endpoints: Progression-free survival, immunogenicity

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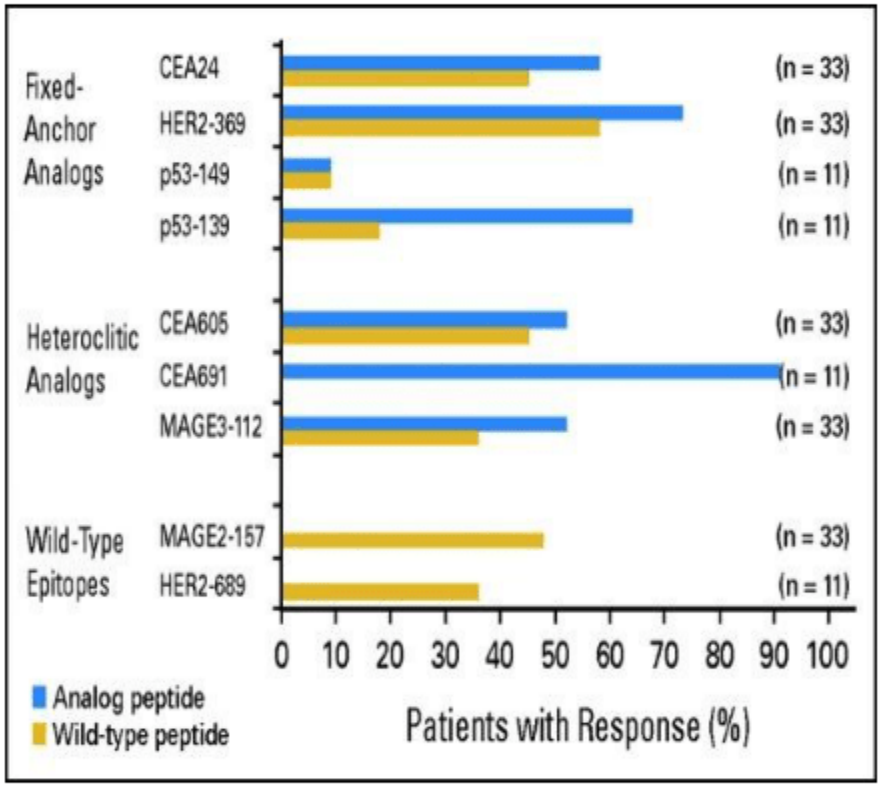
Phase II Immune Responses and Survival



*M. Barve et al JCO 2008 and J. Clin Oncol 26: 2008 (May 20 suppl; abst 8057)

- **91%** (30/33) monitored for CTL showed positive responses to 1 or more, 64% to at least 3 epitopes
- **Significant relationship of epitope response level to survival of treated patients (Janus review 2012)**

Low: *0-1-epitopes:* 406 ± 58 days of survival (n=5; 95% CI for mean 292 -520)*

Medium: *2 to 3-epitopes* : 778 ± 72 days of survival (n=15; 95% CI for mean 637 -919) *

High: *4 to 5-epitopes:* 875 ± 67 days of survival (n=13; 95%CI for mean 743- 1007) *

In all categories stated above: p < .001

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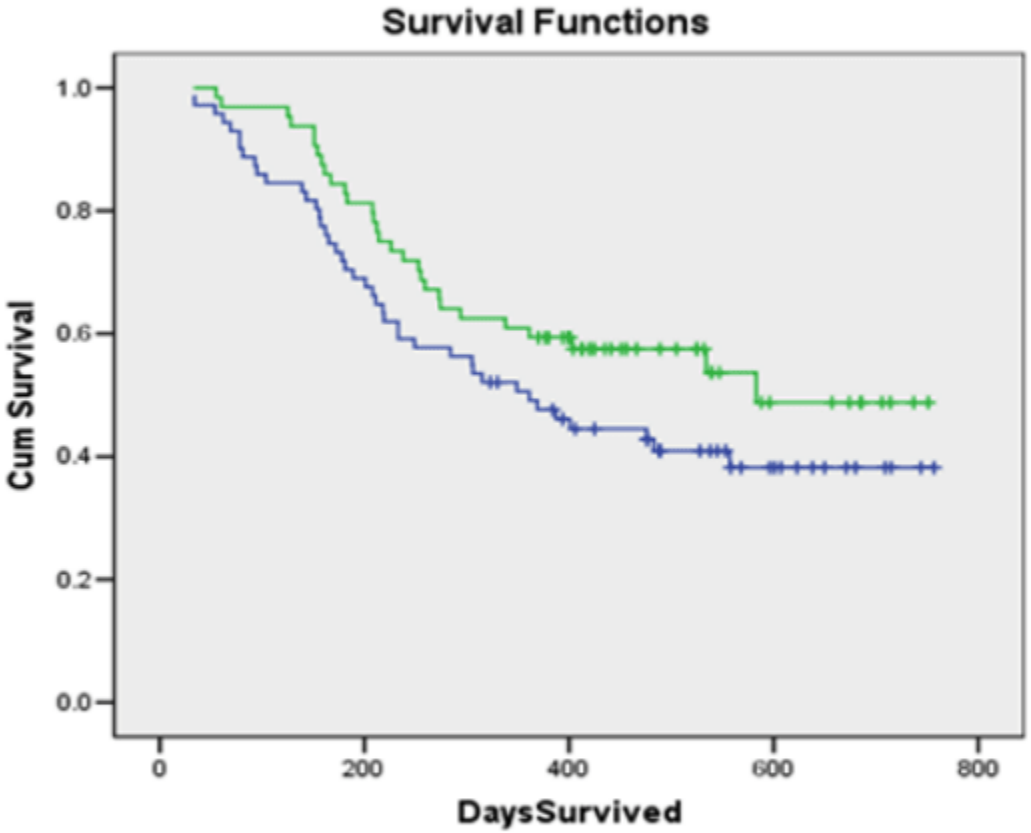
Phase II Overall Survival at 1 Year



*M Barve et al; J Clin Oncol 26: 2008 (May 20 suppl; abstr 8057); J Neimunatis et al; International Society for Biological therapy of cancer 2007 Abs :phase II trial of a 10- epitope CTL vaccine in metastatic NSCLC

OSE Pharma

Received OSE2101

No
Yes
No-censored
Yes-censored

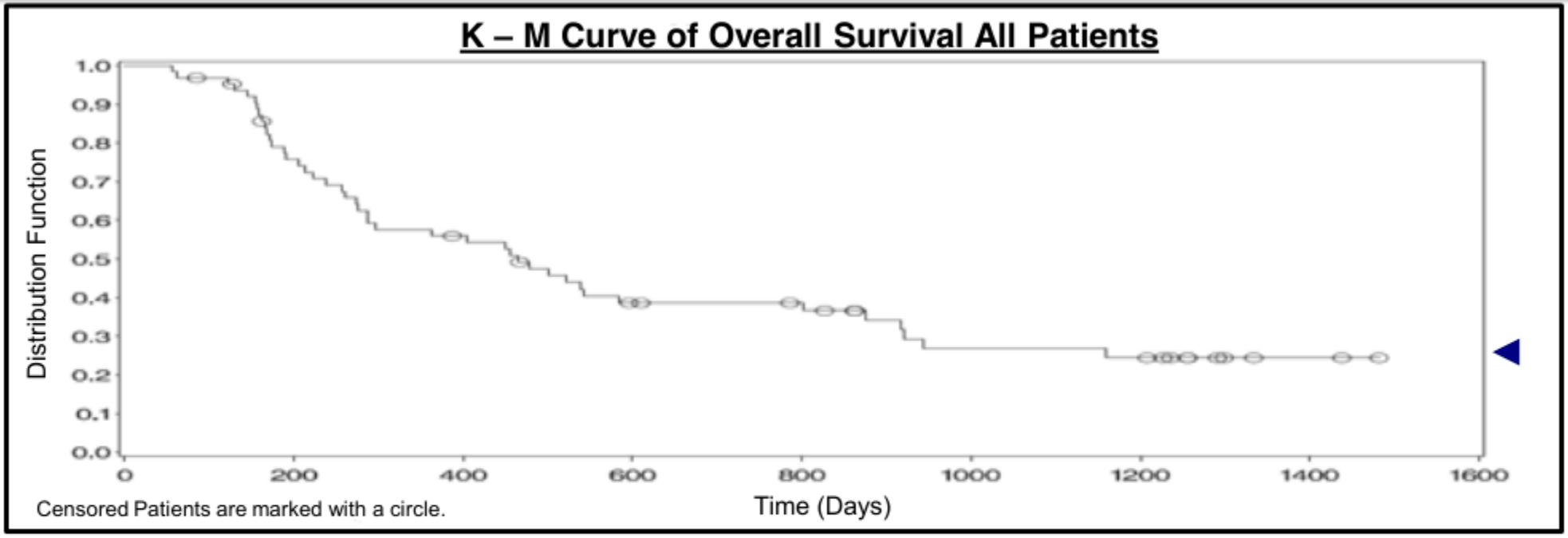
135 patients
Green = OSE2101 Treated =64 (29 deaths)
Blue = Control =71 (42 deaths)
A2 negative parallel selection

One-year survival: p=0.063
Control A2 negative patients= 49%
better prognosis established- Nagata 2009

Treated A2 positive patients= 59%

Median survival (days):p 0.086
Control patients= 361 ± 59
Treated patients= 583 ± 138
7.5 months of difference

Phase II Overall Survival at 4 Years



Stage IV 67%

Paient Group	N	One Year Survival Estimate (95% CI)	Two Year Survival Estimate (95% CI)	Three Year Survival Estimate (95% CI)
All	64	56% (44-68)	39% (26-51)	27% (15-39)
Stage IIIb	21	74% (54-94)	48% (25-70)	24% (2-46)
Stage IV	43	48% (33-63)	35% (20-50)	28% (14-43)

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OSE 2101 Positive Phase II Conclusions

- Strong clinical efficacy signal observed in locally advanced or metastatic NSCLC patients: median survival better than 17 months
- **89%** of patients demonstrated stable disease
- 25% overall long term survival rate at 4 years
- 85% of patients tested presented an immune response
  - A minimum of 2 epitopes; n=33 for the 5 epitopes tested
- Longer survival shown in patients achieving response to 2 or more epitopes
  - P < .001, n=33 for 5 epitopes tested
- Primary adverse effect: injection site reaction

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OSE 2101 Milestones & Use of Proceeds

OSE 2101 targeted cancer immune therapy with positive phase II:

Phase III in advanced HLA A2+ NSCLC pts:

global costs: €23M (including team and G&A)

12/18 months Milestones: Total 4M€

- Orphan status
- FDA/ EMA Phase III Agencies green lights
- Scale up / GMP Biobatches

OSE Pharma

OSE 2101 Timelines & Costs

Subject	Date	€19.3M
▪ Orphan status for NSCLC A2 population :	Q1 2013	
▪ GMP Matterial Phase 3 FDA/EMA acceptance :	2013	€4M
▪ Pivotal clinical program :	2014-2016	€15.3M
▪ Phase 3 results (one year OS rates)	2016 -2017	

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OSE 2101 Intellectual property

OSE 2101 key patent: EP2101 ten epitopes describing HLA A2 Epitopes and or **analogs** combinations from different Tumor Associated Antigens (HER2/neu, CEA, MAGE2; MAGE3; p 53) plus synergy obtained by the original combination :

- **Granted in Europe** (PCT application WO2004094454) filed in April 2004 - protection until 2024
- Other multi-epitopes patents are using modified epitopes: epitopes identification, selection and modification based on immunogenicity results and HLA binding for immune therapy and constitute a barrier to entry
- New patents in the course of development

Know-how: manufacturing of a multi-epitopes composition; process and methods of preparation of 10 peptides combination

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OSE 2101 Business Strategy

Partnering opportunities in non core territories

Major Pharma deal or sale of assets post phase 3

Market Opportunity: €1B

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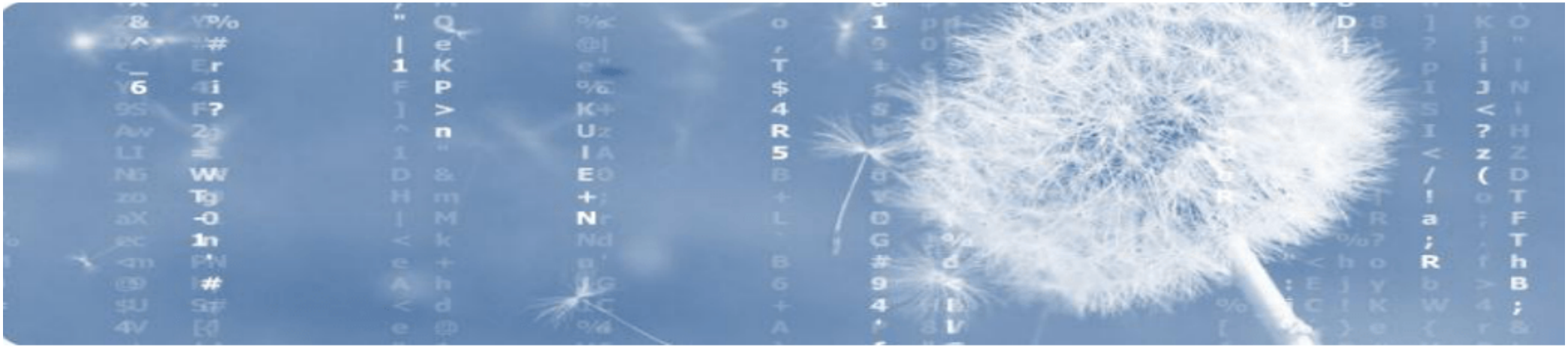

OSE Pharma

OSE 1101 PHASE 2 OPPORTUNITY

in

Cystic Fibrosis - CF

OSE 1101 CF Phase II independent product

OSE1101 (tritoqualine) was selected

- As indicated in severe lung disease: Cystic Fibrosis
- Cystic Fibrosis qualified for Orphan designation
- independent development risk
- Same regulatory and development team as EP2101
- Molecule with a proven safety profile previously marketed in Europe
- Original new anti -inflammatory properties for a CF application

OSE Pharma

CF: New therapies critically needed

With current treatment strategies, 80% of patients should reach adulthood, Cystic Fibrosis remains a life-limiting disease (median survival : 36.9 years)

OSE1101 is a new anti-inflammatory molecule (H4R agonist/IL8 decrease)

Maintaining lung function

- Mucolytic agents (i.e. dornase alfa ,Pulmozyme®)
- Nebulized, inhaled, oral, or intravenous antibiotics
- Bronchodilators
- Anti-inflammatory agents

Current new therapies registered for CF

- Agents acting to reverse chloride transport abnormalities (Kalydeco , ivacaftor®) on specific mutation (4% of CF /annual cost 294 000$)
- hydrating the airway surface : Inhalated mannitol Bronchitol® (EU Australia)

OSE Pharma

OSE 1101 in Cystic Fibrosis

- **OSE1101** as a new H4R agonist & histamine modulator
- Role on histamine level and interleukin release as IL8
- IL8 is a potent chemo-attractant playing a key pro-inflammatory role in stimulating conditions (bacterial and viral infections) or in chronic conditions related to CFTR gene in CF patients
- **OSE1101** is an innovative potent anti-Inflammatory compound targeting H4R expressed in CF and decreasing IL8 release
- **OSE1101** protects mice against bronchospasm induced by two types of provocation tests (in vivo Ovabulmine/TLR 7).
- **OSE1191** induced rise in breath-flow in human intra nasal provocation tests (n = 49-600mg/d - 5 days - Gastpar, H. and Sauer, P.H.)

OSE Pharma

OSE 1101 proven safety Profile

- **OSE1101** previously marketed for allergic disorders as a histidine decarboxylase inhibitor: histamine modulator
  - Decreases the tissue formation of endogen histamine from histidine
- Marketed internationally since 1960 (Chiesi – Novartis consumer health) for the treatment of various allergic conditions
  - 300 to 900mg/d with no obvious side effects
  - Clinical dossier based on extensive prior human use and clinical efficacy on nasal or allergic symptomatology

OSE Pharma

OSE 1101 Milestones & Use of Proceeds

OSE1101 H4R agonist for CF Patients reprofiled molecule

Phase II in CF pts: total €3.8M ($5M)

PK/PD/dose efficacy and safety in young CF patients (age >10)

endpoint : FEV1 improvement vs placebo (follow up 24 / 48 weeks

12/18 months Milestones: Total 1M€

- CF in vivo results : P Barbry, IPMC Director (Sophia Antipolis)
- Orphan status
- FDA/ EMA Phase II Agencies green lights
- GMP Biobatches

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OSE 1101 Timelines & Costs

	Date	Capital €3.8M
▪ Orphan status for CF population :	Q1 2013	
▪ Scale up and bio batches stability :	2013	€0.8M
▪ Phase II clinical program :	2013-2015	€3M
▪ Phase 2 results:	2015	

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OSE 1101 Intellectual Property

- *H4 Receptor agonist, US Patent # 8,207,188 - E Loria, M Nicolaou..* Granted in the US until 2029
- Cystic Fibrosis application: April 2012, OSE Pharma EP 12305487.6 opening International protection until 2032
- New patent in the course of development
- EU US Orphan status protection to be filed in 2013

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OSE1101 Business Strategy

Partnering opportunities to explore

Major Pharma deal or sale of assets post phase 2

US & EU Market Opportunity: €400M

Management Team

Dominique Costantini, M.D. Pres. & CEO

- Former Founder and CEO BioAlliance Pharma (1997-2011,publicly traded on the EuroNext)
- More than €100M raised, three products approved EU/US supportive care and oncology
- Management of drug development and launches (HMR – Sanofi) -M.D, Immunology

David Dellamonica, COO

- Theralpha founder and CEO, TxCells VP BD Biotech
- Sanofi consultant, Patient Solutions i.e. Colitis foundation & PCSK9
- International Marketing experiences Lilly; Ogilvy- ESG Lyon, MBA Switzerland

Elisabeth Peyraube, CFO

- 15 years experience in international companies of which 5 years in the US.
- CFO Metaboli-. CFO ADP GlobalView- USA: SFG, Ubisoft
- Arthur Andersen Auditor.- EDHEC accounting and finance

OSE Pharma

Consultants and Advisors

Jean Bernard Lepecq, Ph.D. Palo Alto
- Developed Taxotere for Aventis
- Expertise in cancer vaccines

Alex Sette, Ph.D. La Jolla
- Former Epimmune CSO
- Developed algorithm programs at Epimmune and currently at La Jolla Institute for Allergy

Alain Chatelin, M.D. pneumologist -Altius - Paris
- Consultant to the Pharma and Biotech
- Developed products in infectiology, oncology, respiratory field. (HMR) .Altius Pharma CEO
- Contributed to orphan status for both OSE products and will be involved in the phase III coordination program

Jim Carter, Ph. D. Regulatory compliance Inc Las Vegas
- US FDA OSE representative, Consultant to the Pharma and Biotech (IND/registration/API dossier). Large FDA regulatory experiences and network

Mike Nicolaou, Ph.D. San Diego
- Former Epimmune Director of Manufacturing
- Expertise in formulation, manufacturing, QA/QC, bioassays (Amylin, Yasoo Health)

Les Walker, PhD; San Diego
- Former Epimmune Director of process,
- EP-2101 batches for Phase I/I and phase II
- Expertise in vaccine and peptide manufacturing

Fred Bancroft, San Diego
- QA/regulatory (Amylin)

Steve Reich, M.D Oncologist. San Diego
- Consultant Pharma and Biotech,
- involved in EP-2101 phase I and II designs
- Contributing to phase III protocol.

OSE Pharma

Board of Directors

Emile Loria, M.D., Chairman

- Former President & CEO of Epimmune (Nasdaq:EPMN), Science and Business expertise
- Biotech and Pharma companies (Biovector Therapeutics, Medical Synergy/Cygnus, Sanofi, Ciba-Geigy)

Dominique Costantini, M.D., CEO

- Founder and CEO of BioAlliance, more than 100M€ raised and products approved in EU/US
- HMR, Roussel

Guy Chatelain

- Attorney at Law, partner Mentha & Associés
- Geneva and Swiss Barr association, Geneva association of Business Law

Walter Flamenbaum, M.D.

- 40 years of healthcare experience in innovation and investments , Paul Capital partner emeritus, Professor of medicine at Mount Sinai University, MD at Columbia University

Jean Theron

- Founder and Managing Director of JT.Pharma International Consulting
- Former President Hoechst Marion Roussel France,
- CEO of Hoechst Roussel Diamant, Lutsia, Hoechst Behring

OSE Pharma

Business models and Comparables

- Biovex / Amgen acquisition 2011: $425 million cash up to $575 million in additional payments

  oncolytic vaccine in Phase 3, melanoma/ H&N cancers

- Immatics 108M€ Invested in 3 rounds

  natural peptides from primary tumour tissues/ Phase III in renal cell carcinoma-phase II in colon cancer

- Novartis -Transgene Option : 995M$ deal in 2010

  Muc tumor antigen/ IL2 recombinant Virus in Phase III - NSCLC/ first line Treatment
  Deal with Novartis 10M$ upfront in phase IIb /III

- AB Sciences (594M€ Euronext)

  Masitinib at registration stage in Pancreatic cancer + other indications

OSE Pharma

Value proposition after first private placement

Breakthrough products addressing €1.4B markets

NSCLC leading cause of cancer mortality/ CF is killing before 40

Milestones targeted after 5M€ 1st round

Increasing value in 12/18 months:

OSE 2101 targeted cancer immune therapy phase III in advanced HLA A2+ NSCLC

OSE 1101 H4R agonist Phase II in CF pts

- **Orphan** status for both opportunities
- FDA/EMEA protocol acceptance and partnering opportunities
- GMP materials

Limited risk due to late stage clinical drugs (Phase 3 and Phase 2)

OSE Pharma

Next step and exit strategy

IPO feasible with these assets
and management expertise
next 12-18 months

5 IPO done in 2012 with far less advanced portfolio

Opportunity as Pre IPO round at attractive valuation

Pharma deal/ sale of the assets after clinical data

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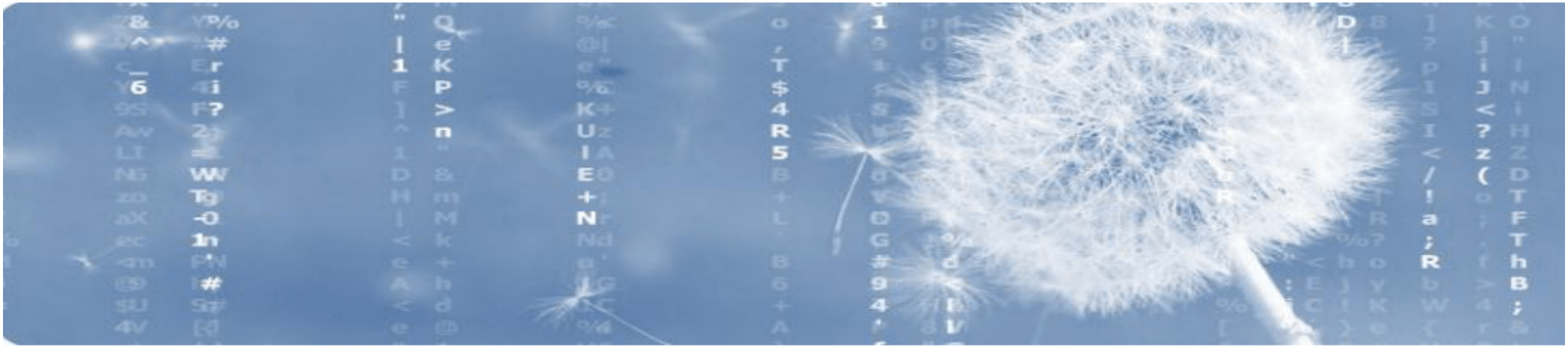

Contacts

OSE Pharma

severe Orphan lung diseases

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