Welcome from Institut Gustave Roussy

Professor Eggermont, The Director General - Institut Gustave Roussy
Gilles Bloch, President - Université Paris-Saclay
Professor Vassal, Professor of Oncology - University Paris-Sud
Premier CCC in Europe
Volume of Activity

- ± 12-13000 new patients /yr
- ± 50,000 patients treated/yr
- > 20,000 surgical interventions/yr
- > 200,000 chemotherapies/yr
- > 250,000 outpatient visits

- 560 beds (includes 110 outpatient beds/chairs)
- 220 specialists FT + 200 PT

- Employees ± 3300

- Budget: 330 millions Euros
- Research: 70 millions Euros
Key Clinical Missions

• Tertiary / Highly Complex Medicine
• Rare Tumors ( > 25%)
• Care integrated with Clinical Research
  (~3800 pts/yr in Clinical Trials)

• Early Drug Development
  – (900 pts included in 2015 : ~25% of CR program)

KEY MISSION: INNOVATE and create ACCESS TO INNOVATION

INTEGRATION of RESEARCH and CARE to create TOMORROWS MEDICINE
Principles

- **Improve Research Continuum:**
  - Molecular Medicine Building for TR
- **Improve High Tech Infrastructures**
  - Robot, XRT top-end, Imaging, Research Platforms
- **Innovation and Valorisation**
  - Cancer Campus Initiative
  - International programs
    - Satellite Hospitals Kuwait, Astana
    - International Training Programs
- **BIG is BEAUTIFUL**
  - Expand, expand, expand
  - Beds 330 – 450 (35%)
  - Outpatient beds/chairs Chemo: 90 – 115 (30%)
  - Research buildings
    - Mol Medicine TR Building (15M)
    - PRECAN (50M)
Clinical RESEARCH

- ~3800 patients in clinical trials in 2014
  - 2010: 2166 pts

- 28% of new patients in clinical trials
  - 1/3 Pharma fully sponsored
  - 1/3 Gustave Roussy-led multicenter academic trials
  - 1/3 Gustave Roussy-single institution academic studies

- Premier Activity in Europe in Early Clinical Trials/Drug Development
  - 2013 Creation of Department of Drug Development
  - Head: Jean Charles Soria
    - In 2010: 216 pts
    - In 2015: 905 pts
• 30 Research Groups (Inserm, CNRS, Gustave Roussy)
• 400 Researchers, 240 Technicians

• Basic Research/Translational Research
  – Research Building 1 and 2 (each 5000 M2)
  – 2013 Molecular Medicine Translational Research Building 3 (6000M2)

• Translational Research
  – Additional Laboratories in Hospital Building
    • Tumor Immunology/immunomonitoring platform / Biomarkers / Genetics / Mol diagnostics etc..
Decision December 2011 – Inauguration June 2013 (15M)
New Research Building 6000 M2 : 20 new labs

- 1 floor for TR / Molecular Medicine: 10 labs (linked to clinical trials, clinical timelines), NGS, RNAseq etc, CTC, cfDNA, Immunomonitoring (floor 12 in hospital)
- 1 floor for 10 new Research Groups (recruited from MSK, Harvard, CNIO, Stanford, DKFZ, etc)
- 1 floor for Biostat/Bioinformatics and Education
Ecole Doctorale des Sciences de Cancer

- 5000 student hours
- MD/PhD programs
- New Medical/Paramedical Professions
- Onco-Nursing

International programs
- Gulf States
- Kazakhstan (150 specialists, 120 surgeons)
  - @ Gustave Roussy and @ Kazakhstan
- Latin America
- International MD/PhD program
CHOOSE Amongst KEY AREAS in Cancer Research

- **Immunology/Immunotherapy**
  - Program Directors clinical/scientific/monitoring
  - Microbiota Program

- **Oomics and Precision Cancer Medicine**
  - Department for Drug Development, ECT
  - NGS-WES-WGS, cfDNA development, Biomarkers

- **Epigenetics**

- **Haemato/MDS/IPS-Stem cells**

- **Cell Death Mechanisms**

- **EMT – MET / Plasticity**

- **Functional Imaging**

- **Bioinformatics and BIG DATA**

- **Nanotechnology**

- **Radiobiology – New Drugs+RT**

- **Prevention**
Choose Research Lead Programs

- **Clinical Research Machine**
  - ~ 3800 pts/yr = ~30% all pts
  - Precision medicine trials +++
  - Immunotherapy Trials +++
  - Early Drug Development +++

- **Basic Research**
  - Cell Death Mechanisms (Guido Kroemer)
  - Tumor Immunology (Laurence Zitvogel)
  - Haemato-Oncology (William Vainschenker)
  - DNA repair (Rosselli)

- **Translational Research**
  - Immunotherapy (transversal)
  - Precision Cancer Medicine (transversal)
  - Jean Charles Soria / Fabrice Andre (Lung/Breast)
  - Robert/Vagner/Eggermont (Melanoma)
  - Solary / Bernard (Haemato)
Personalized Cancer Medicine

#1 Program in Europe
Molecular profiling
Identification of the molecular alteration
Targeted therapy according to the molecular profile
Tumor Specimen
Molecular profiling

Precision Medicine: identify-hit the target
Since 2010: Ongoing precision medicine programs
15 GR-initiated trials (high throughput genomics)

**Sponsor**
- Gustave Roussy monocentric
- Gustave Roussy/Unicancer multicenter
- Gustave Roussy/WIN multicenter
- L Bérard/Lyon
- Curie

**Pilot study**
- MSN Lung/Mel Besse/Robert (Andre) 600/600
- preSAFIR (Andre) 108/108

**1st Gener Trials**
- No NGS
  - SAFIR01 (Andre) 427/427
  - SAFIR02 Lung/Soria 480/600
  - GETUG 1&2 Fizazi Vassal 600
- NGS
  - MOSCATO (Soria) 1150/1200
  - MATCH-R (WES, PDX, cfDNA) 200/600
- WES
  - MOSKIDO (Goerger) 80/100
  - WINThER 150/200

**Randomized trials**
- SAFIR02 Lung/Soria 520/600
- SAFIR02 Breast/Andre 520/600

**Unified Database:**
Pick up the winner targets

**Algorithm for Personalized medicine**

**FUNDING TOTAL ~50 Million:** Fondation GR (12), MCM Building (15), IHU (6), INCA (6), ARC (4), Philanthropia (3), EU-FP7 (3)
Immunotherapy
#1 Program in Europe
BREAKING TOLERANCE
Immune-Checkpoint-Blockers
CTLA-4 and PD-1/PDL1

Mostly CENTRAL in LNN

Dendritic cell

MHC
TCR
B7
CD28
B7
CTLA-4
anti-CTLA-4

T cell

CTLA-4 Blockade (ipilimumab, tremelimumab)

Activation (cytokines, lysis, proliferation, migration to tumor)

Mostly PERIPHERAL Tumor Microenvironment

T cell

MHC
TCR
PD-1
PD-L1
PD-1
PD-L2
anti-PD-1
anti-PD-1

Tumor cell

PD-1 Blockade (nivolumab, lambrolizumab)
BRAF in BRAF mutant compared to anti-PD1 in Wildtype Advanced Melanoma

OS 9.7-13.6 mts
Gain: 3.9 mts
HR 0.70

PFS 1.6-6.9 mts
Gain 5.3 mts
HR 0.38
Anti-PD1
(nivolumab)
(pembrolizumab)

TRANSVERSAL IMPACT
Pembrolizumab Antitumor Activity

Melanoma\(^1\) (N=411) KEYNOTE-001

NSCLC\(^2\) (N=262) KEYNOTE-001

H&N Cancer\(^3\) (N=61) KEYNOTE-012

Urothelial Cancer\(^4\) (N=33) KEYNOTE-012

Gastric Cancer\(^5\) (N=39) KEYNOTE-012

TNBC\(^6\) (N=32) KEYNOTE-012

cHL\(^7\) (N=29) KEYNOTE-013

Immunotherapy + Other Modalities
Guidance by Immunogenic Cell Death
Zitvogel & Kroemer

PRIORITIES GUSTAVE ROUSSY

• Find the money to develop and transform into Top 7 worldwide

• International Patients Program

• International Training Programs
  – Kazakhstan
  – Gulf Countries
  – Latin America

• International Development Projects
  – Kazakhstan
  – Gulf Countries
  – Satellite Hospitals in Kuwait and Astana
PRIORITIES GUSTAVE ROUSSY

• FIND THE MONEY

• IMMUNOTHERAPY PROGRAM
  – Immunotherapist-Scientists (25-75)
  – Immunomonitoring platform + immunosignature programs
  – Combo academic trials / immunogenic cell death guided
  – > 30 PHASE I TRIALS @ GUSTAVE ROUSSY

• PRECISION CANCER MEDICINE PROGRAM
  – As shown
  – Tumor priority programs: Lung-Breast-Melanoma-Hemato
  – >30 Trials with targeted agents (large cohorts)

• CONSORTIA
  – CANCER CORE EUROPE

• TRANSFORM CCC into CANCER CAMPUS
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• TRANSFORM CCC into CANCER CAMPUS
CANCER CORE EUROPE

Position Paper

Cancer Core Europe: A consortium to address the cancer care - Cancer research continuum challenge

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KEYWORDS
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Research
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Consortium
Europe

Abstract European cancer research for a transformative initiative by creating a consortium of six leading excellent comprehensive cancer centers that will work together to address the cancer care-research continuum. Prerequisites for joint translational and clinical research programs are very demanding. These require the creation of a virtual single ‘e-hospital’ and a powerful translational platform, inter-compatible clinical/molecular profiling laboratories with a robust underlying computational biology pipeline, standardized functional and molecular imaging, commonly agreed Standard Operating Procedures (SOPs) for liquid and tissue biopsy procurement, storage and processing, for molecular diagnostics, omics, functional genomics, immune monitoring and other assessments. Importantly also it requires the culture of data collection and data storage that provides complete longitudinal data sets to allow for effective data sharing and common database building and to achieve a level of completeness of data that is required for conducting outcome research, taking into account our current understanding of cancers as communities of evolving clones. Cutting edge basic research and technology development serves as an important driving force for innovative translational and clinical studies. Given the excellent track records of the six participants in these areas, Cancer Core Europe will be able to support the full spectrum of research required to break the cancer research - cancer care continuum. Cancer Core Europe also constitutes a unique environment to train the next generation of talents in innovative translational and clinical oncology.

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VIRTUAL E-HOSPITAL/CANCER INSTITUTE

60,000 New pts/yr, 300,000 pts treated, > 1.3 Million consultations

- COMMON SOPs
  - (tissue procurement, biobank, functional imaging, molecular screening methods (common 400 gene panel), bioinformatic pipelines, etc)

- SHARE DATA (common data bases)
  - SAP HANNA ONCOLOGY MODULE

- DEVELOP PRECISION MEDICINE
  - ONE PORTAL
  - Innovative Trials, attractive partner for pharma/biotech etc

- OUTCOME RESEARCH
Comprehensive Cancer Center
Towards a Cancer Campus
1st Step PRECAN

Alexander EGGERMONT. MD, PhD
Gustave Roussy Comprehensive Cancer Center
Cancer Campus Grand Paris, France

1st Step PRECAN (largest preclinical infrastructure for cancer research in France (25000 cages, imaging etc etc)
From CCC to CANCER CAMPUS

2nd STEP: METRO STATION Gustave Roussy
At Cross Road of the Two most important Metro Lines (2020)
3rd STEP: BIOTECHS etc 2018-2023

Gustave Roussy Cancer Campus Grand Paris
THANK YOU

COME VISIT GUSTAVE ROUSSY
Cancer Campus Grand Paris