LA RECHERCHE SUR L’OBÉSITÉ, LA PLACE DES INSTITUTS

CHRISTIAN BOITARD
Professeur d’immunologie clinique,
Directeur de l’institut « circulation, métabolisme, nutrition »

<table>
<thead>
<tr>
<th>Health Research: 10-12 Institutes</th>
<th>Scientific Excellence, Attractiveness, National Readability and Visibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cancer</td>
<td>ANRS</td>
</tr>
<tr>
<td>Infectious Diseases</td>
<td>CEA</td>
</tr>
<tr>
<td>Neurology</td>
<td>CNRS</td>
</tr>
<tr>
<td>Psychiatry</td>
<td>CEA</td>
</tr>
<tr>
<td>Anticancer</td>
<td>CEA</td>
</tr>
<tr>
<td>Inca</td>
<td>CEA</td>
</tr>
<tr>
<td>Circulation</td>
<td>CNRS</td>
</tr>
<tr>
<td>Metabolism</td>
<td>CEA</td>
</tr>
<tr>
<td>Nutrition</td>
<td>CEA</td>
</tr>
<tr>
<td>Immunology</td>
<td>CNRS</td>
</tr>
<tr>
<td>Haematology</td>
<td>CEA</td>
</tr>
<tr>
<td>Pneumonology</td>
<td>CEA</td>
</tr>
<tr>
<td>Genetics and Development</td>
<td>CNRS</td>
</tr>
<tr>
<td>Health Technologies</td>
<td>CEA</td>
</tr>
<tr>
<td>Clinical Research and Public Health</td>
<td>CNRS</td>
</tr>
</tbody>
</table>

CNRS

Hospital-driven programs for clinical research
Research Units located within Universities and University Hospitals

INRA

INSERM

INRA

CEA

ANRS

Génétique, génomique & bioinformatique
Biologie cellulaire, développement & évolution
Bases moléculaires & structurales du vivant
IRSP

Circulation
Metabolism
Nutrition

Scientific Excellence, Attractiveness, National Readability and Visibility
streamline and unify the management system of its life sciences and health research operations

a single National Institute for Life and Health Sciences Research
career pathways of the French life sciences and health scientists

implementation strategy that would ensure continuity over a transition period of several years

- Streamline the peer review and evaluation process
- Unify and simplify the approach to the management of intellectual property
- In-depth review of INSERM budget allocations
- Improve relationships with all research stakeholders, particularly the public
- Maximise the use and coordination of funds for clinical research
- Reduce the number and size of advisory committees

staff researchers:
405 [INSERM:300 CNRS:101 INRA: 4]

units: 160

Kidney 16 10% 8.67%
Bone & Joints 13 7% 7.16%
Metabolism Nutrition & Diabetes 49 30% 514.37%
Liver 15 10% 9.06%
Hear & vessels 40 29% 304.26%
Endocrine glands 17 9% 8.87%
Digestive tract 10 5% 4.62%

directors: 60% on a university track

university 628/251.6
Specificities

CNRS
- 60 staff researchers

INSELM
- 160 units
- 300 staff researchers

INRA
- 212 staff researchers

Coordination with CNRS, INRA

Specificities

INRA 212 staff r.

Coordination with INRA [nutrition]

Food security, pharmacology

Food behavior

Nutrient physiology

4 CRNH
- Île de France [1 INSERM unit]
- Rhône-Alpes [4 INSERM units]
- Auvergne, Nantes [2 INSERM units]
publications 2004-2008 (IF > 5)

circulation
diabetes
nutrition
obesity,
endocrinology
gastro-enterology
hepatology
nephrology
bone & joints

domain | INSERM | total
-------|--------|------
heart/vessels | 349 | 811
diabetes/endoc | 496 | 911
lipids, obesity | 55 | 130
liver/gut | 385 | 734
bone/joints | 109 | 250
kidney | 150 | 283

coordination [nutrition]

<table>
<thead>
<tr>
<th>JOURNAL</th>
<th>IF</th>
<th>world</th>
<th>INRA</th>
<th>INSERM</th>
<th>CNRS</th>
<th>INRA/INSERM</th>
<th>INRA/CNRS</th>
<th>CNRS/INSERM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Journal of nutrition</td>
<td>3.61</td>
<td>7273</td>
<td>121</td>
<td>50</td>
<td>10</td>
<td>12</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Obesity research</td>
<td>3.97</td>
<td>4739</td>
<td>5</td>
<td>31</td>
<td>6</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>American j. of clinical nutrition</td>
<td>5.85</td>
<td>3573</td>
<td>39</td>
<td>52</td>
<td>6</td>
<td>14</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>International j. of obesity</td>
<td>4.48</td>
<td>3206</td>
<td>17</td>
<td>99</td>
<td>21</td>
<td>8</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Food chemistry</td>
<td>1.81</td>
<td>3096</td>
<td>5</td>
<td>12</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>J. of pediatric gastroenterol and nutrit.</td>
<td>2.08</td>
<td>2506</td>
<td>8</td>
<td>20</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>J. of the amer. dietetic association</td>
<td>2.38</td>
<td>2247</td>
<td>3</td>
<td>5</td>
<td>none</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>British j. of nutrition</td>
<td>2.97</td>
<td>1889</td>
<td>121</td>
<td>52</td>
<td>9</td>
<td>13</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Nutrition</td>
<td>2.06</td>
<td>1542</td>
<td>1</td>
<td>9</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>European j. of clinical nutrition</td>
<td>2.16</td>
<td>1541</td>
<td>39</td>
<td>32</td>
<td>5</td>
<td>8</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>European j. of nutrition</td>
<td>2.26</td>
<td>357</td>
<td>67</td>
<td>41</td>
<td>6</td>
<td>11</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Public health nutrition</td>
<td>1.92</td>
<td>873</td>
<td>3</td>
<td>30</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Clinical nutrition</td>
<td>2.30</td>
<td>834</td>
<td>9</td>
<td>15</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Reprod. Nutrition dev.</td>
<td>0.99</td>
<td>351</td>
<td>146</td>
<td>11</td>
<td>22</td>
<td>9</td>
<td>17</td>
<td>2</td>
</tr>
<tr>
<td>Lipids</td>
<td>1.91</td>
<td>1142</td>
<td>37</td>
<td>10</td>
<td>30</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>European j. of lipid science and technol.</td>
<td>1.04</td>
<td>770</td>
<td>15</td>
<td>2</td>
<td>8</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Nutrition research</td>
<td>0.72</td>
<td>1015</td>
<td>14</td>
<td>4</td>
<td>none</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Appetite</td>
<td>1.73</td>
<td>561</td>
<td>7</td>
<td>5</td>
<td>6</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Progress in lipid research</td>
<td>11.37</td>
<td>135</td>
<td>1</td>
<td>2</td>
<td>6</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

TOTAL 50729 | 741 | 548 | 178 | 102 | 34 | 34

n 51 | 39 | 37 | 30 | 22 | 13 | 16
major issues in the french health context

health issues
scientific issues

CIRCULATION

technology issues
organizational issues
industrial issues

coordinated
programming
interface avec la société

obesity: 12.4% of the adult population in 2006

public health challenge in two opposite fields: diseases related to nutrition overload: obesity, dyslipidemia, type 2 diabetes

cardiovascular diseases: 29% of deaths [atherosclerosis]

diabetes: 6.2%, glucose intolerance: 5.6% in France (age 20-70)
leading cause end stage renal disease, blindness, coronary disease
10% health care expenses in USA 2002/50% 1997 → 2007

malnutrition: 30-50% hospitalized patients, independant mortality factor
spécificité du champ de l’obésité

- large éventail de champs disciplinaires:
  - de la connaissance de l’aliment (chimie, physicochimie, technologie des procédés) à celle de l’alimentation et de ses effets (biologie et toutes ses facettes, épidémiologie, psychologie, sociologie, économie)

- de l’homme sain à l’homme malade
  - connaissance de l’aliment, physiologie du tube digestif, comportement alimentaire, sécurité alimentaire

- 4 départements : alimentation humaine (AlimH), technologie alimentaire (CEPIA), microbiologie (MICA) et sociologie/économie (SAE2).
  - caractéristiques organoleptiques des aliments et comportements alimentaires, « métabonomique » des effets physiologiques des aliments et des nutriments, microflore digestive, aliment et gènes : nutrigénéétique nutrigénomique, épigénétique

major issues in the french health context

- scientific issues
  - genetics: human genome sequence
    - the gene to function challenge
    - the human diversity challenge
    - epigenetics, metagenomics
  - development biology: stem cell differenciation
    - organ replacement therapy
  - innate immunity and metabolic pathways
    - environment, inflammation, diseases
  - innovative therapies
    - strategies based on disease mechanisms
HUMAN DIVERSITY

DISEASES

1953

2008

THE ENVIRONMENTAL CHALLENGE

the need for an integrative approach

nutrition
inflammation
& diseases

Hotamisligil GS Nature 2006