



HIGHER EDUCATION / A LOOK AT THE UNIVERSITY OF HAVANA RESEARCH NETWORK

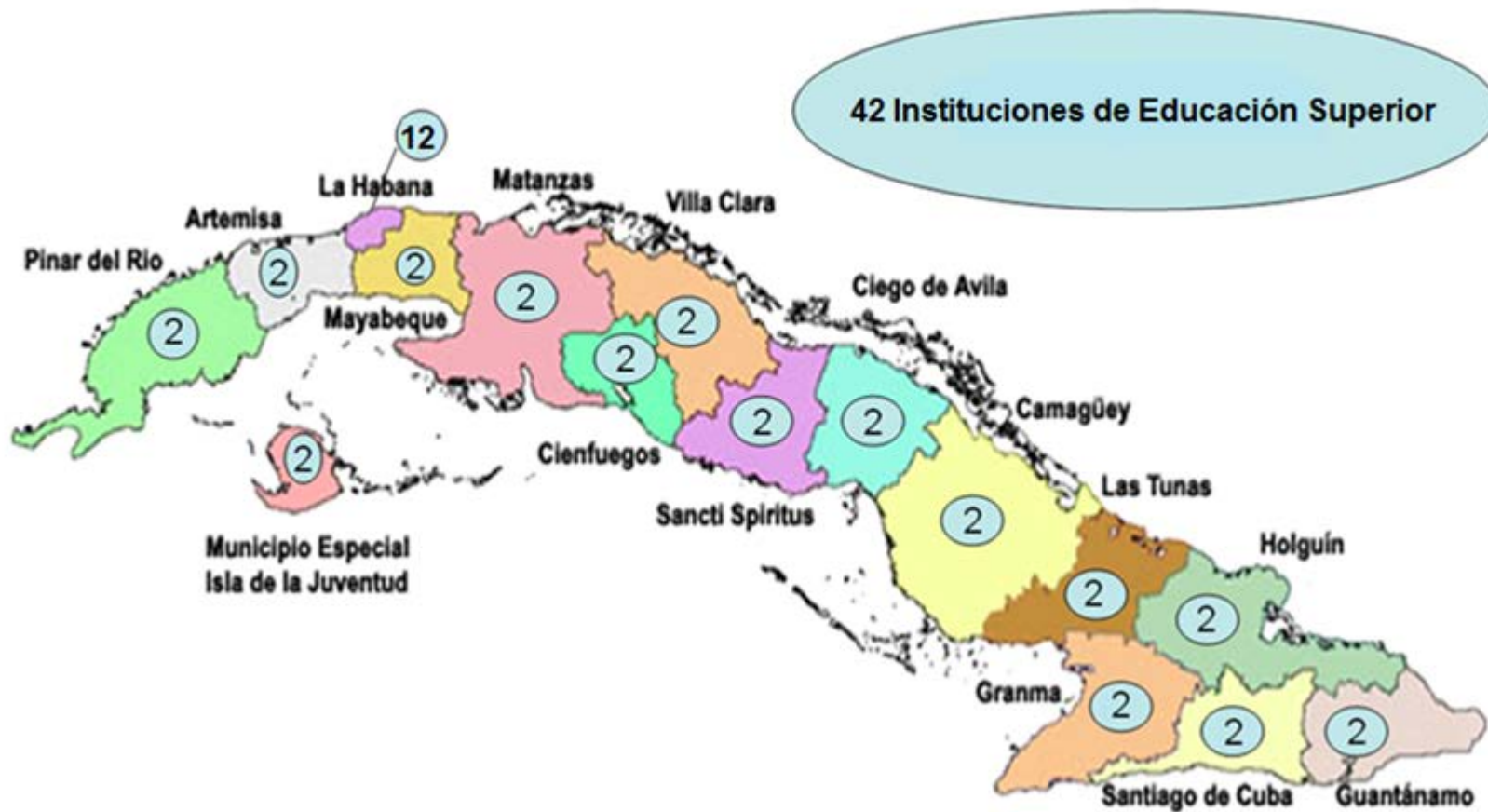


**Dr. Dionisio Zaldivar Silva / Dean of Faculty of Chemistry – U.H / Network
Coordinator MEDIMED**

dionisio@fq.uh.cu

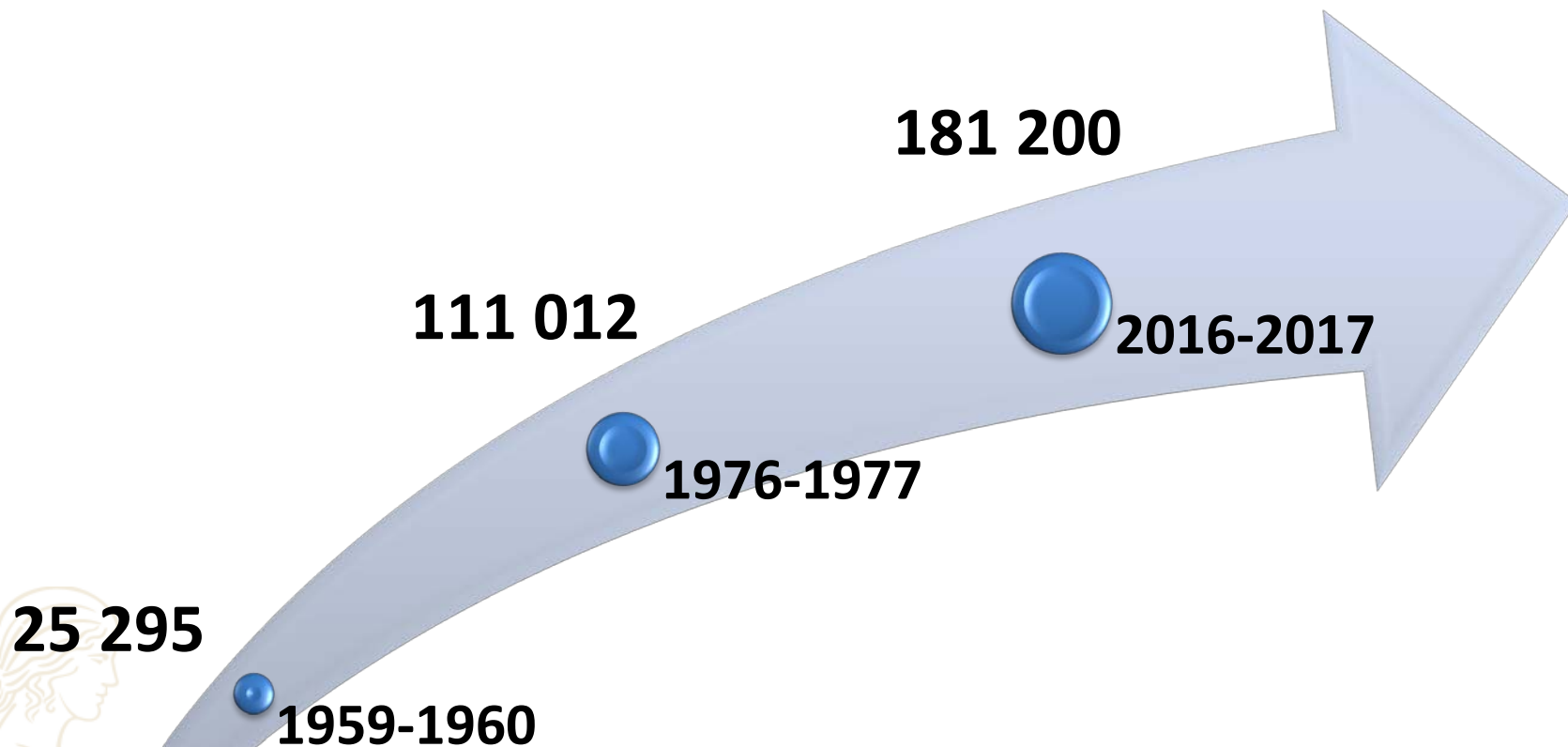


NATIONAL NETWORK OF HIGHER EDUCATIONAL





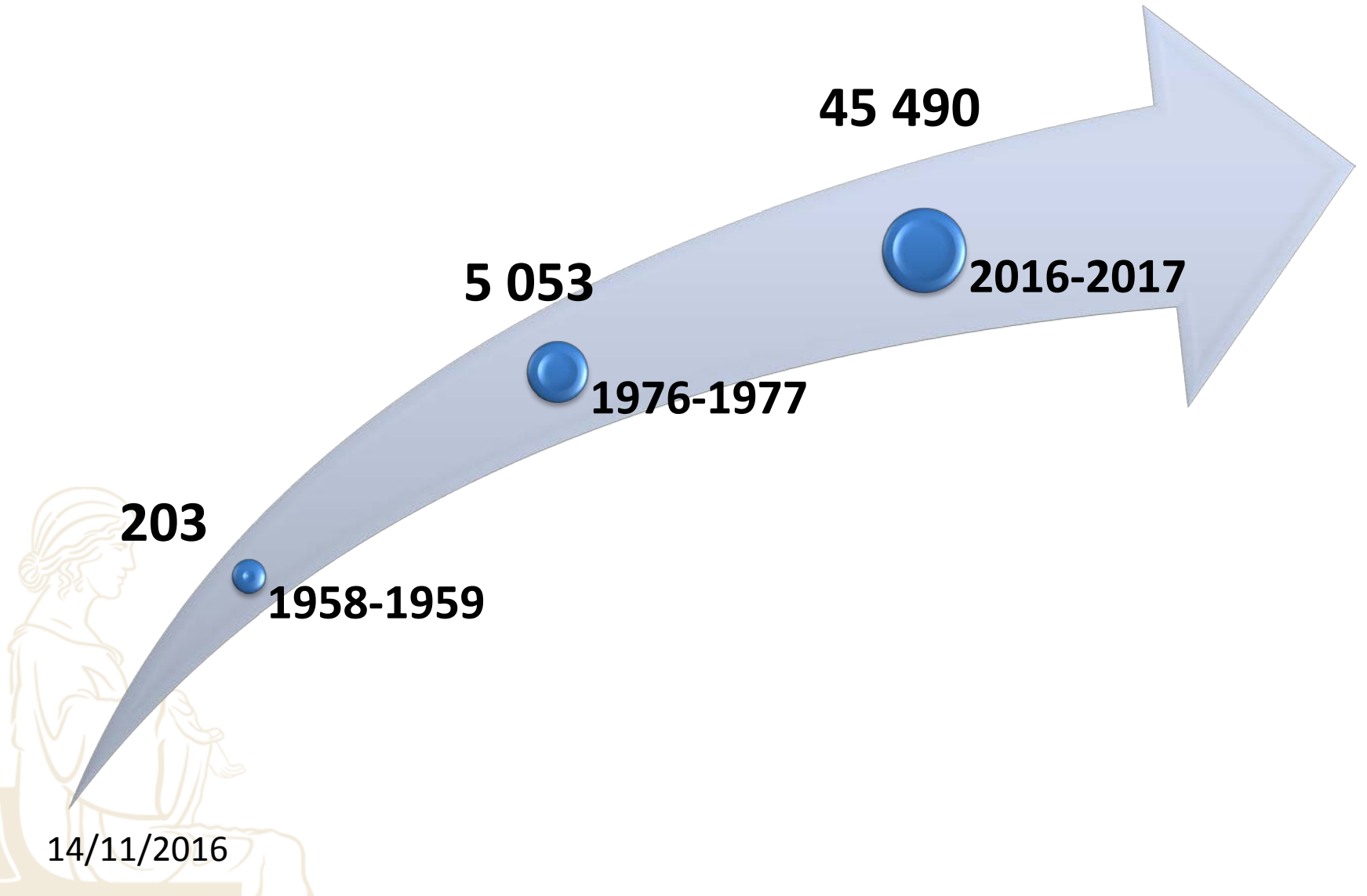
Undergraduate enrollment



14/11/2016

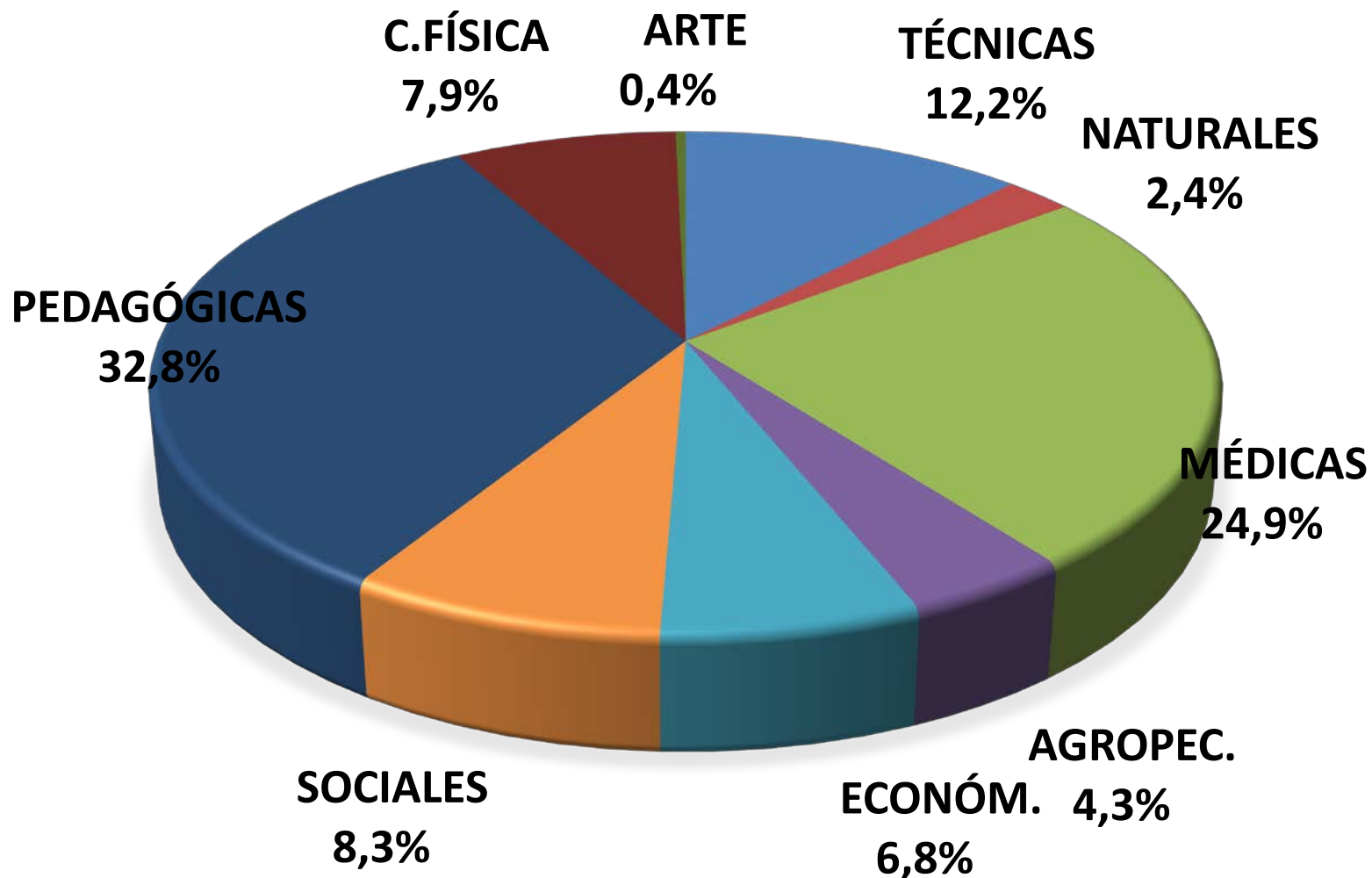


STAFF



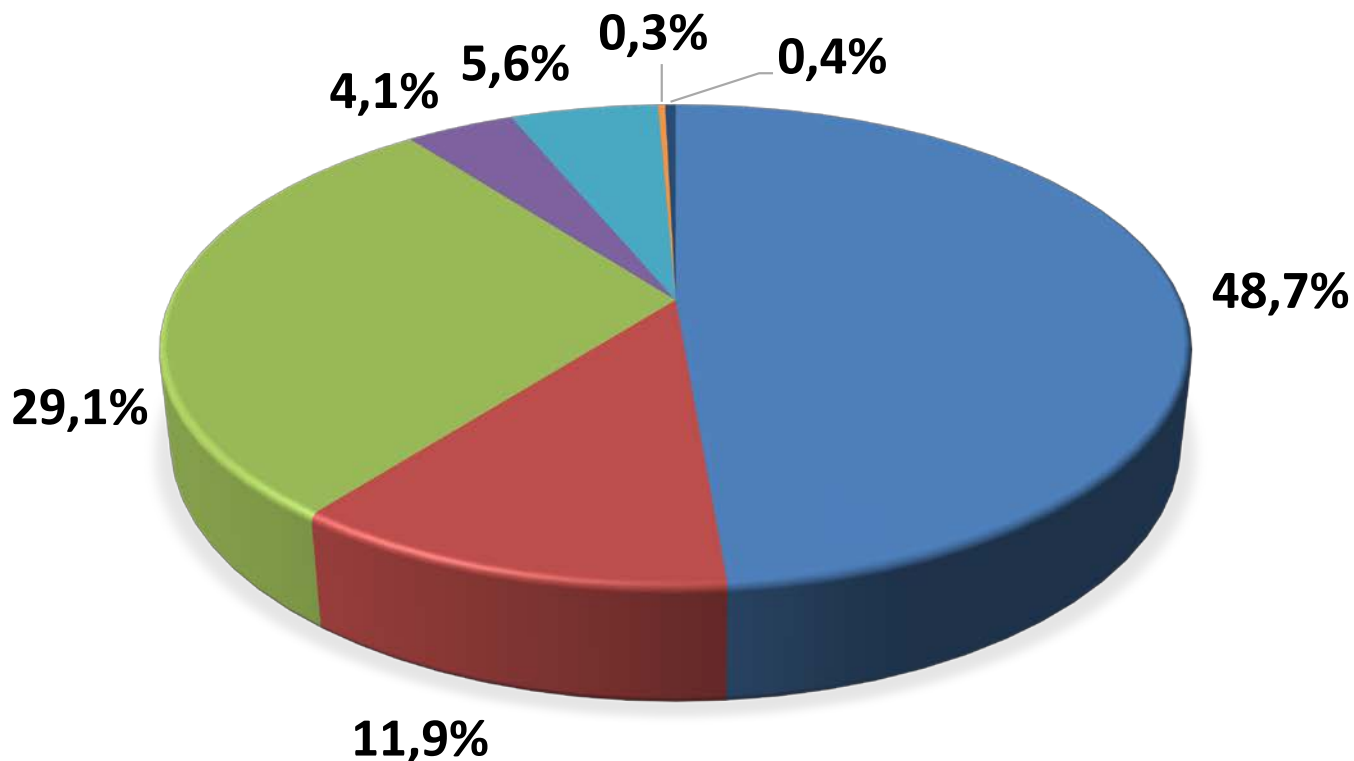


GRADUATES FROM 1960: 1 374 723





Foreign graduates from 1961: 52 499



AMÉRICA LATINA

ÁFRICA N. y MEDIO O.

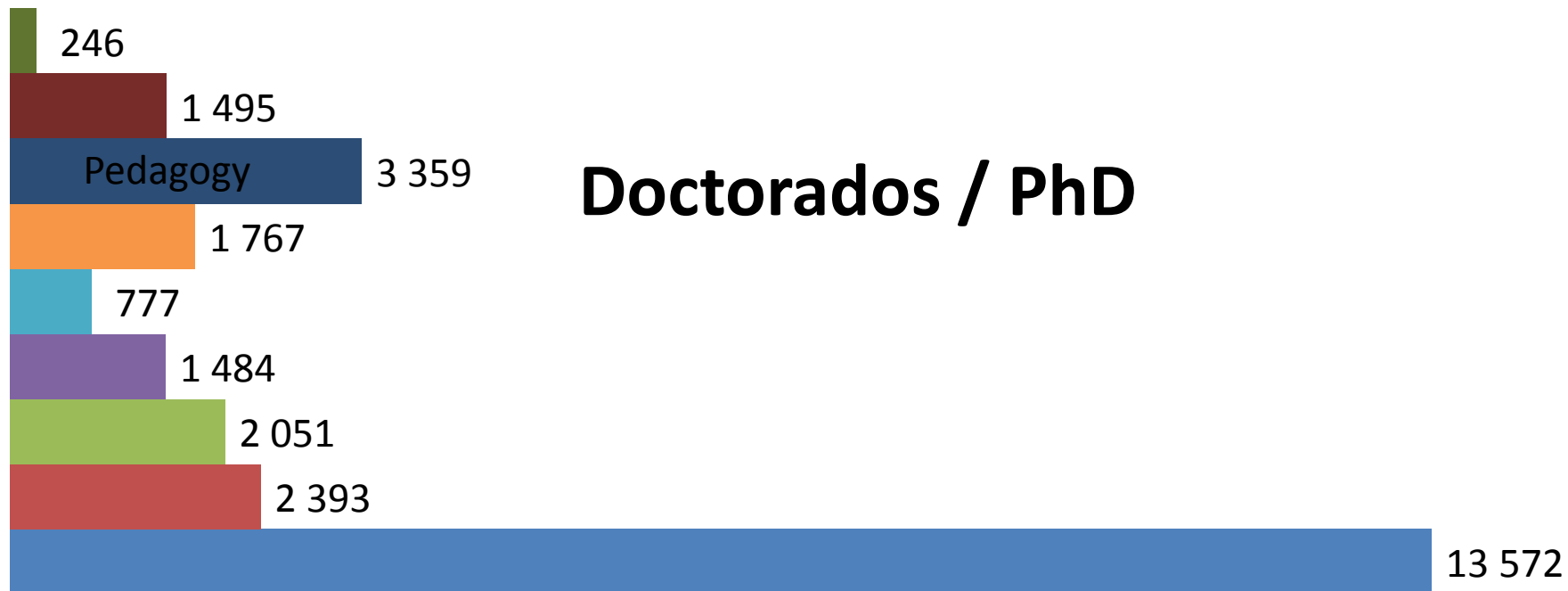
EUROPA

CARIBE

ASIA Y OCEANÍA

ÁFRICA SUBSAHARIANA

AMÉRICA DEL NORTE



Doctorados / PhD

Otras

Cienc.Soc.y Humanísticas

Cienc.Nat.y Matemáticas

Ciencias Médicas

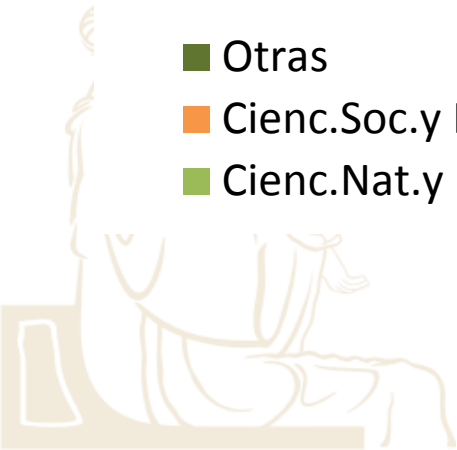
Ciencias Económicas

Ciencias Técnicas

Pedagogía

Ciencias Agropecuarias

Total



“Was founded in 1728”



UNIVERSITY OF HAVANA



UNIVERSITY OF HAVANA (UH)



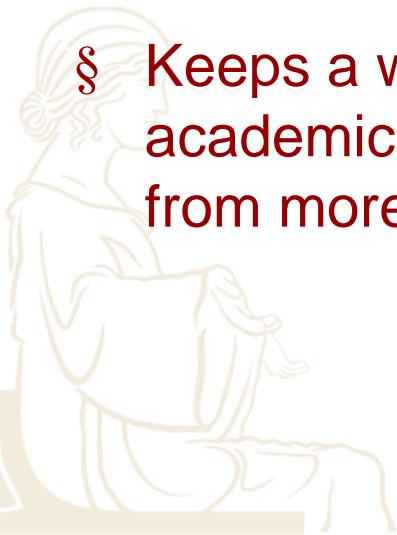
- ✓ Was founded in 1728.
- ✓ Has 18 Faculties and 14 research centers.
- ✓ Is member of more than 50 international organizations and 59 academic and scientific networks.
- ✓ Teacher and Researchs: 1520
- ✓ Students: 15 000 (Bachelor) / 25 000 (Postgraduate)
- 2 600 (New graduates, July 2016).



ACADEMIC EXCHANGE CUBA - UNITED STATES

UNIVERSITY OF HAVANA (UH)

- § Pioneer institution in the development of academic exchanges between Cuba and the U.S.
- § Has signed 49 MoU with American universities.
- § Keeps a wide international collaboration based on 444 academic agreements, signed with prestigious institutions from more than 70 countries.





MAIN EXPERIENCES

§ As result of the success of the courses and acquired experiences, American Institutions proposed to create Semester Programs that give credits to the students degrees.

§ First Semester Program was in September 2000.

§ The Semester Programs gradually increased to 8 groups from 2000 to 2004.

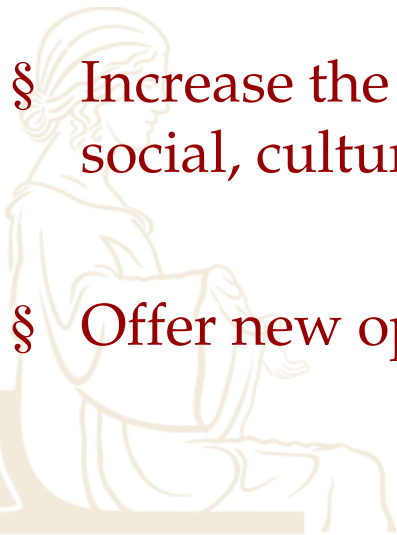
§ Now there are 19 Semester Programs.





TODAY'S GOALS

- § Work together to restore and enhance the cooperation and collaboration between Cuba and US academic communities.
- § The academic exchange between Cuba-US contributes to a better understanding and offers a different perspective to students and professors.
- § Increase the US people understanding of Cuban economic, social, cultural and political life.
- § Offer new options.





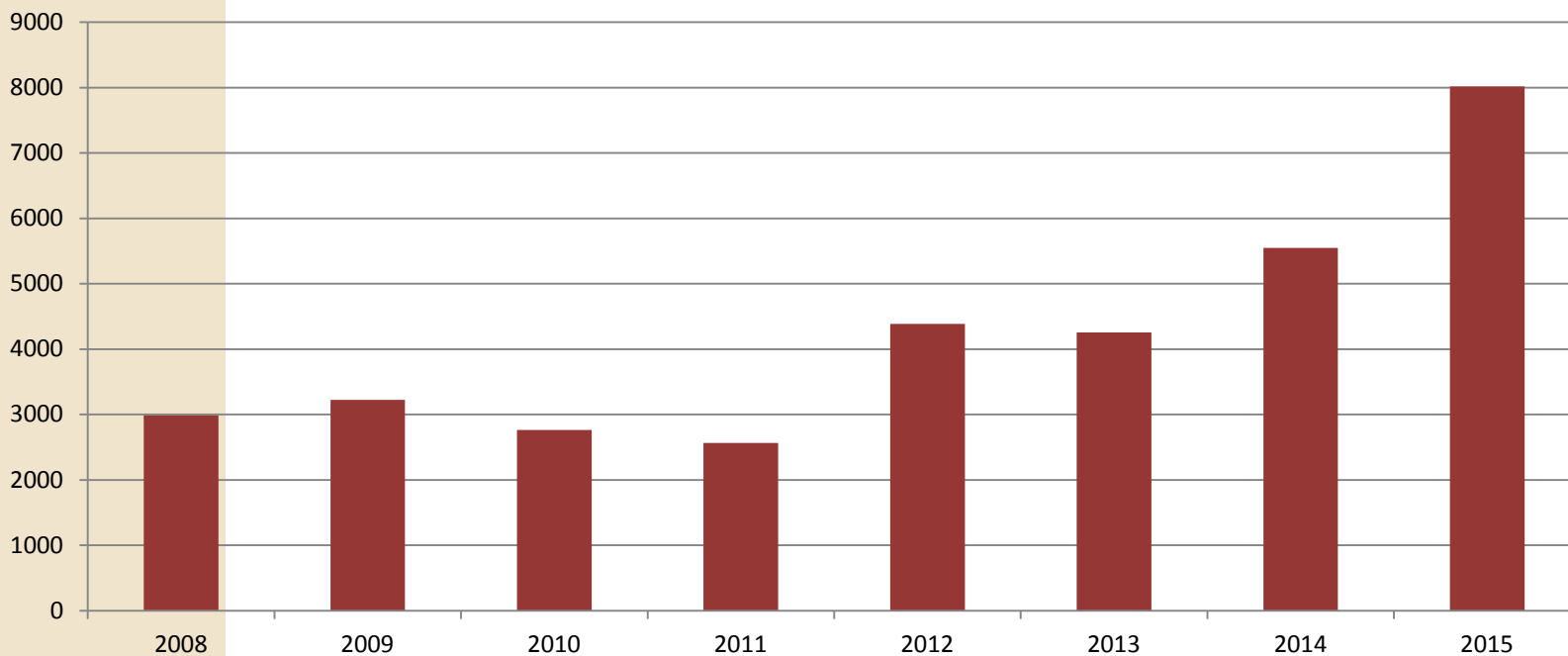
INTERNATIONAL STUDENTS AT THE UNIVERSITY OF HAVANA (UH)

Years	Total of students	Countries
2008	2 986	85
2009	3 224	83
2010	2 763	88
2011	2 567	56
2012	4 386	67
2013	4 257	67
2014	5 548	73
2015	8 018	81
Total	33 749	



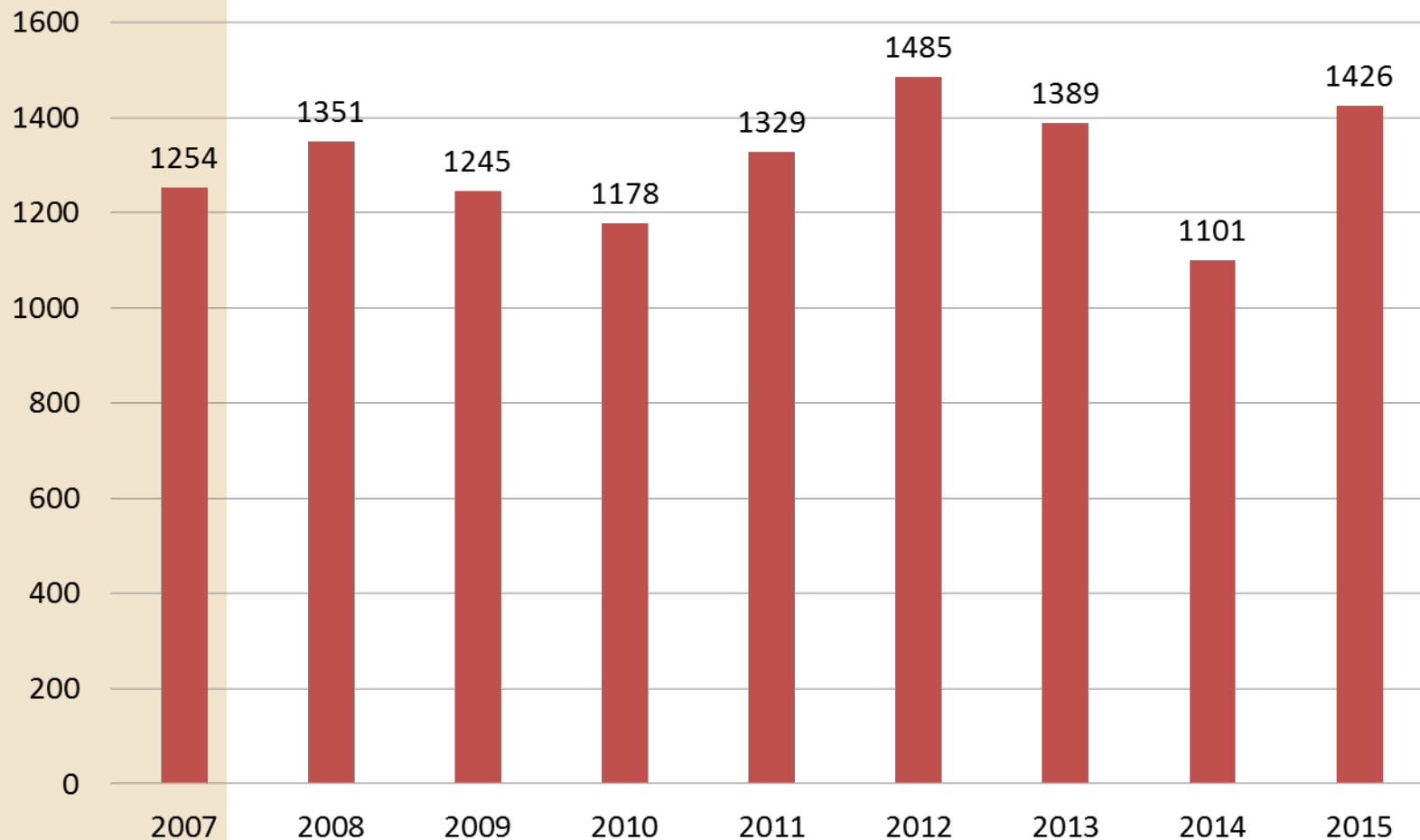
INTERNATIONAL STUDENTS AT THE UNIVERSITY OF HAVANA (UH)

2015 8 018 INTERNATIONAL STUDENTS CAME TO UH





UH: STAFF MOBILITY







FACULTY OF CHEMISTRY / HAVANA UNIVERSITY



- **Ungraduated formation in Chemistry / Bachelor in Chemistry, from 1992**
- **Postgraduate studies: Programs of MSc. and PhD.**
- **Research areas related with synthesis of organic and inorganic compounds / Materials and Biomaterials / Nanosciencies / Controlled drug release / Applied Electrochemistry / Molecular Simulation and Theoretical and Computational Modeling / etc.**
- **The students join to research groups (22) since early years of the career.**



Consortium of the Cuban Biotechnological and Pharmaceutical Industries, BioCubaFarma:

AICA



CIGB



CENI



I. FINLAY



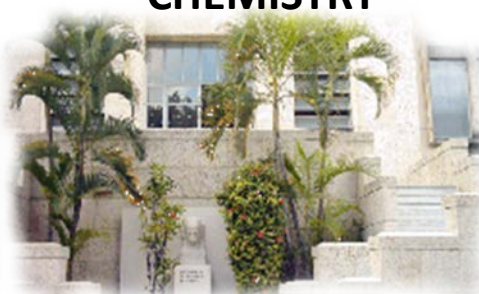
CIM



IPK



FACULTY OF
CHEMISTRY



LIORAD



CIE



CIREN



CNGM



NOVATEC



CENPALAB



CNEURO



BioC



CEN



32 ORGANIZATIONS / 21 785 STAFF



FQ: SOME PRODUCTS OF SCIENCE

Quimi-Hib / Finlay Institute

A synthetic Haemophilus influenzae type b conjugate vaccine for the prevention of meningitis and pneumonia in children
Science 2004, 305, 522-524



The vaccine was obtained for the first time using a fully synthetic antigen without using the bacteria





FQ: SOME PRODUCTS OF SCIENCE

BIOBRAS 16

is a plant growth improvement of crop yields. This product do not induce physiological or toxic damages on plants.

- Brassinostereroids
- Center of Natural Product (CEPN)



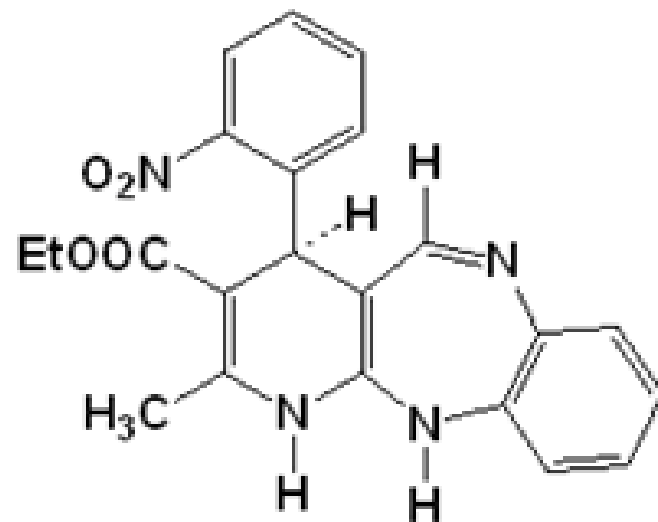


FQ: SOME PRODUCTS OF SCIENCE

JM 20 (Code)

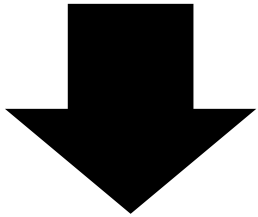
Cerebral ischemia and neurodegenerative diseases.

- Heterocyclic compounds.
- Neurochemistry Group.

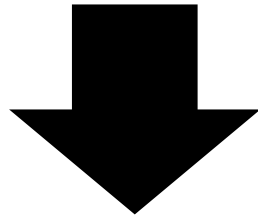




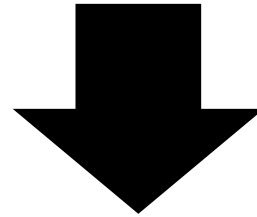
FQ-UH, 1979 (NEW RESEARCH CENTERS)



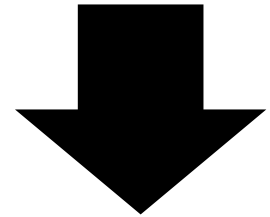
**IMRE (Institute of
Science and
Tecnologoly of
Materials, 1985)**



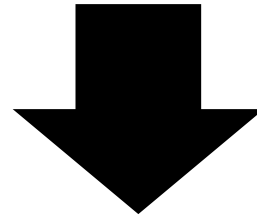
**BIOMAT (Center
of Biomaterials,
1991)**



**LAGS (Center
of Synthetic
Antigens, 1994)**



**CPN (Center
of Natural
Product,
1994)**



**VACCINE INSTITUTE
"CARLOS J. FINLAY"
2015**





SCIENCE AND TECHNOLOGY / UH





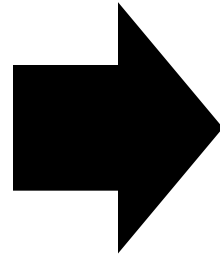
RESEARCH NETWORK

RESEARCH NETWORK	CENTER COORDINATOR
Environment	Centro de Investigaciones Marinas
Biotechnology	Centro de Estudios de Proteína
Cuban Economic Model	Comisión de Ciencias Económicas del Consejo de Ciencia y Tecnología
Local and Regional Development	Cátedra de Ciencia Tecnología y Sociedad
Society and Family	Centro de Estudios Demográficos
Energy	Instituto de Ciencia y Tecnología de Materiales
Public administration	Centro de Estudios de Administración Pública
Cooperatives	Facultad Latinoamericana de Ciencias Sociales
Materials, Devices and Drug / MADIMED	Centro de Biomateriales / Faculty of Chemistry (Dr. Dionisio Zaldivar Silva)
International Studies	Centro de Investigaciones de Economía Internacional

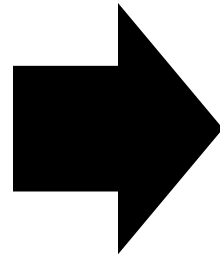


Participating areas :

www.madimed.uh.cu



**Materials, Devices
and Drug /
MADIMED**



Havana University:

- Center of Biomaterials, **BIOMAT**
- Institute of Pharmacy and Food, **IFAL**
- Institute of Science and Tecnology of
Materials, **IMRE**
- Faculty of Chemistry, **FQ**
- Faculty of Biology, **FBIO**
- Faculty of Matemática, **MATCOM**

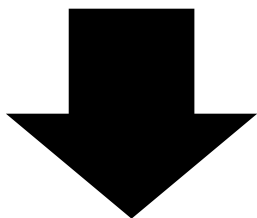
Consortium of the Cuban Biotechnological and Pharmaceutical Industries, BioCubaFarma :

- Center for Pharmaceutical Research and
Drug Development , **CIDEM**
- Enterprise, **AICA**

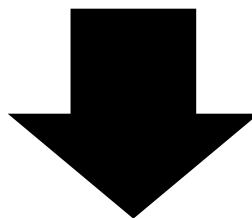




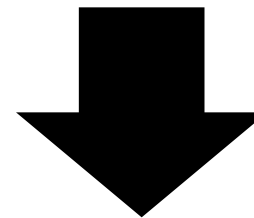
MADIMED-UH MATERIALS, DEVICES AND DRUG



(RESEARCH NODES)



**EXCHANGE
ACADEMIC
(BRASIL / OTROS)**



**PRODUCT DEVELOPMENT
(MATRIX OF INNOVATION)**

VISION STRATEGY / CUBAN POPULATION STRUCTURE

ESTRUCTURA DE LA POBLACION CUBANA POR EDADES Y SEXOS 2025

La figura muestran la estructura de la población Cubana y el volumen y la estructura de la población mayor de 60 anos en el año 2030. El nivel actual de la mortalidad en Cuba es bajo. La esperanza de vida al nacer en el 2005-2010 era de 77,97 años, ligeramente superior en mujeres (80,02) que en hombres (76). El nivel de envejecimiento de la población cubana, es hoy de 18,3% y, según las proyecciones, pudiera llegar al 31% de sus efectivos con 60 y más años en 2030 estimado en 3,3 millones .



VISION STRATEGY

INCREASE IN LIFE EXPECTANCY / POOR QUALITY OF THEIR CONNECTIVE TISSUES / OSTEOPOROSIS / ARTHRITIS / BONE FRACTURE

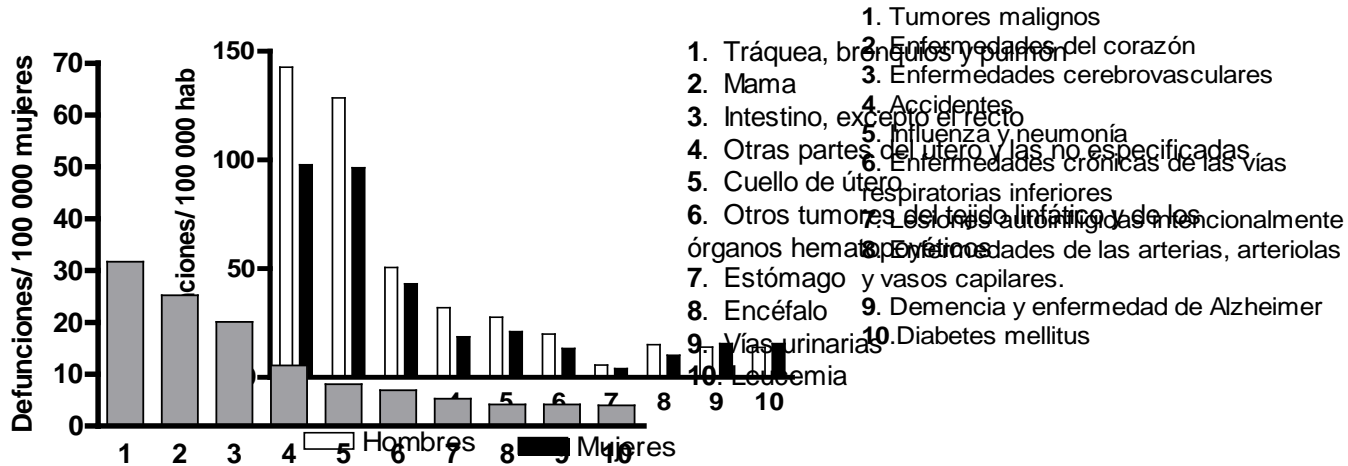
BIOMATERIALS DEMAND

EL PROGRESIVO AUMENTO DE LA ESPERANZA DE VIDA DE LA POBLACIÓN IMPLICA QUE MUCHAS PERSONAS SUPERARÁN LA CALIDAD DE SUS TEJIDOS CONECTIVOS. PROBLEMAS COMO LA OSTEOPOROSIS, ARTRITIS, PÉRDIDA DE DENSIDAD ÓSEA O LA OBESIDAD APARECERAN. ALGUNOS ESTUDIOS REPORTAN QUE UNA DE CADA DOS MUJERES Y UNO DE CADA CINCO HOMBRES MAYORES DE 65 AÑOS SUFRIRÁ ALGÚN TIPO DE FRACTURA.

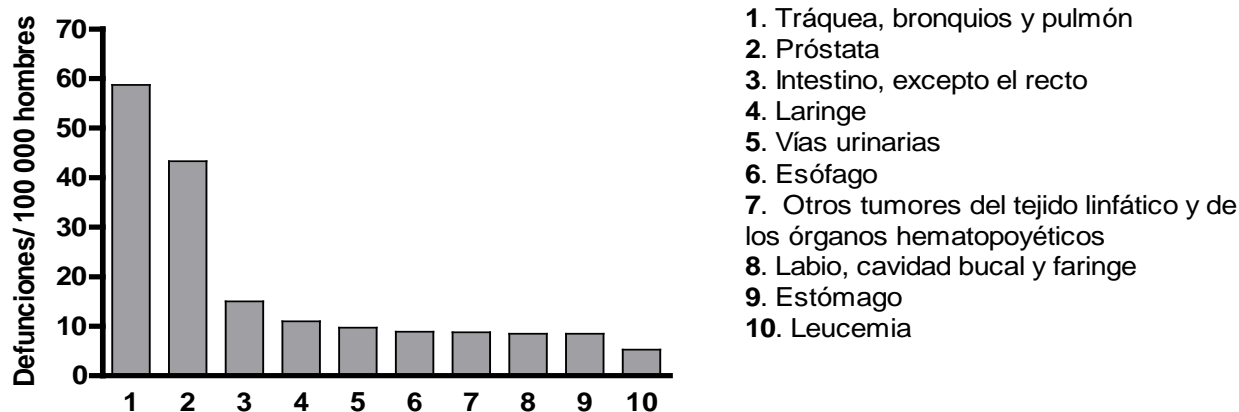
DEMANDA: BIOMATERIALES PARA LA SUSTITUCIÓN, REPARACIÓN Y REGENERACIÓN DE TEJIDOS OSEO Y DENTAL.

VISION STRATEGY / MORTALITY / MAIN TUMORS

Mortalidad por tumores malignos 2009



Mortalidad por tumores malignos



VISION STRATEGY

✓ **THE SEARCH FOR NEW THERAPEUTIC MOLECULES (CANCER) CLAIMING BIOMATERIALS FOR ADMINISTRATION.**

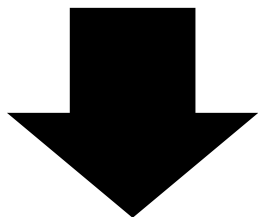
✓ **CUBAN BIOTECHNOLOGY INDUSTRY IS A STRONG ARM TECHNOLOGICO-PRODUCTIVE AND CAN SERVE AS OUTPUT TECHNOLOGIES AND PRODUCTS DEVELOPED BY THE UNIVERSITY.**

OPPORTUNITY

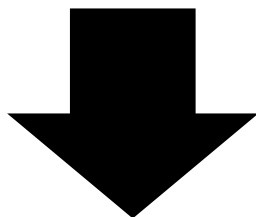
✓ **ADVANCES IN CELLULAR AND MOLECULAR BIOLOGY AND BIOINFORMATICS.**



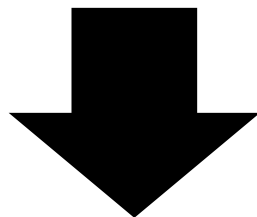
NETWORK MADIMED-UH (NODE RESEARCH)



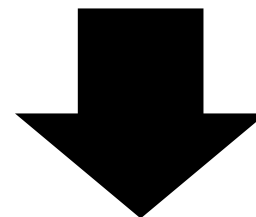
**DIAGNOSTIC /
DEVICE**



**DRUGS /
COSMECEUTICAL**

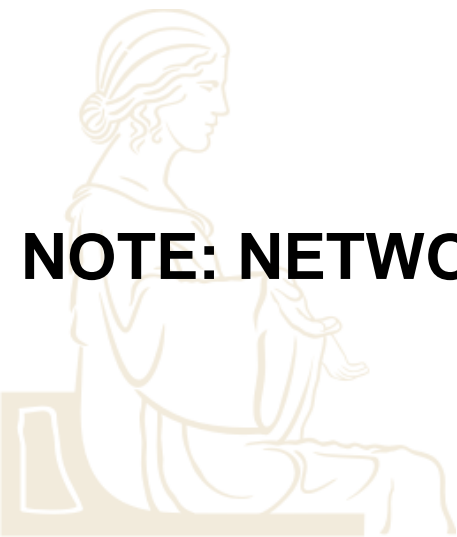


BIOMATERIALS



**NANOMATERIALS /
NANOTECHNOLOGY**

NOTE: NETWORK BIOMED / NODE "BIOMOLECULES"



PROJECTION - PRODUCT DEVELOPMENT / MATRIX INNOVATION

No.	PRODUCTO/PROYECTOS	APLICACION	INVESTIGACION	FASE PRECLINICA	FASES DE CLINICA			APROB
					F1	F2	F3	
1.	CUBRIDEN	SELLANTE DENTAL DE FOSAS Y FISURAS						1994
2.	TISUACRYL	ADHESIVO TISULAR						1996
3	APAFILL-G	REPARADOR OSEO						1996
4.	VETACRYL	ADHESIVO TISULAR PARA USO VETERINARIO						1998
5.	BIOGRAFT-G	REGENERADOR OSEO						2009
6.	MULTILATEX	PREP DE KITS DIAGNOSTICO		NO PROCEDE	NO PROCEDE			1993
7.	APAFILL-G PF	MATRIZ PARA PURIFICACION BIOLOGICA		NO PROCEDE	NO PROCEDE			2017
8.	APAFILL-G-DMB	MATRIZ PARA DIAGNOSTICO MICROBIOLÓGICO		NO PROCEDE	NO PROCEDE			2017
9.	BIOMAT-IDM	IMPLANTE DENTAL MONOCUERPO		2017-2019	2021	2023	2024	2018
10.	APAFILL-G BLOQUES BP	REPARADOR DEFECTOS OSEOS		2015-2016	2018	2019	2021	2019
11	APAFILL-G BLOQUES BP	REPARADOR DEFECTOS OSEOS		2015-2016	2018	2019	2021	2019

13.	FORM TISUACRYL ATM	AGENTE ANTIMICROBIANO		2015-2017	2018	2020	2022	2019
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17.	FORM TISUACRYL ATB	ANTIBIOTICO		2016-2018	2018	2020	2022	2020
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17.	FORM TISUACRYL ATB	ANTIBIOTICO		2016-2018	2018	2020	2022	2020
18.	BONACRYL	CEMENTO ACRILICO OSEO		2016-2018	2020	2022	2024	2022



DESTACAR / HIGHLIGHT:

- ✓ **MAYOR CONOCIMIENTO DE LO QUE HACEMOS EN CADA LUGAR /
GREATER KNOWLEDGE OF WHAT WE DO IN EVERY PLACE**

- ✓ **PROYECTOS CONJUNTOS DE INVESTIGACION CON OTROS PAISES /
JOINT RESEARCH PROJECTS WITH OTHER COUNTRIES**

- ❑ **ACCESO A EQUIPAMIENTOS DE ALTA TECNOLOGIA QUE NO
DISPONEMOS / CCESS TO HIGH-TECH EQUIPMENT NOT HAVE /**

- ❑ **FORMACION DE RECURSOS HUMANOS / FORMATION OF HUMAN
RESOURCES**





DESTACAR / HIGHLIGHT:

- ✓ **PUBLICACIONES / JOINT PUBLICATIONS**
- ✓ **PRESENTACIONES EN CONGRESOS /
PRESENTATIONS EVENTS**





NEXT YEAR, 2017

- IV WORKSHOP MADIMED, FROM JULY 3TH TO 7TH**

- II WORKSHOP NANOMEDD 2017, FROM DECEMBER 4TH TO 8TH**

- THE FIRST SEMESTER PROGRAM, FROM FEBRUARY**

- SHORT COURSE (ONE WEEK), IN MARCH**





**“Quien no haya experimentado la irresistible atracción de la ciencia,
no podrá comprender su tiranía.”**

Dr. Frankenstein. Mary Shelley

Thank you very much

Dr. Dionisio Zaldivar Silva / Dean of Faculty of Chemistry

dionisio@fq.uh.cu

de noviembre 2016