VNIVERSIDAD DE LA HABANA

FACULTAD DE QUÍMICA
UNIVERSIDAD DE LA HABANA

Research interests in the Faculty of Chemistry, of Havana University

Dr. Cristina Diaz Lopez

University of Rutgers, Camden

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"Was founded in 1728"

UNIVERSITY OF HAVANA

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

CIM

CIGB

CENI

I. FINLAY

IPK

FACULTY OF CHEMISTRY

CIREN

CNGM

LIORAD

CIE

NOVATEC

CENPALAB

CNEURO

BioC

CEN

BioCuba Farma GRUPO

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.

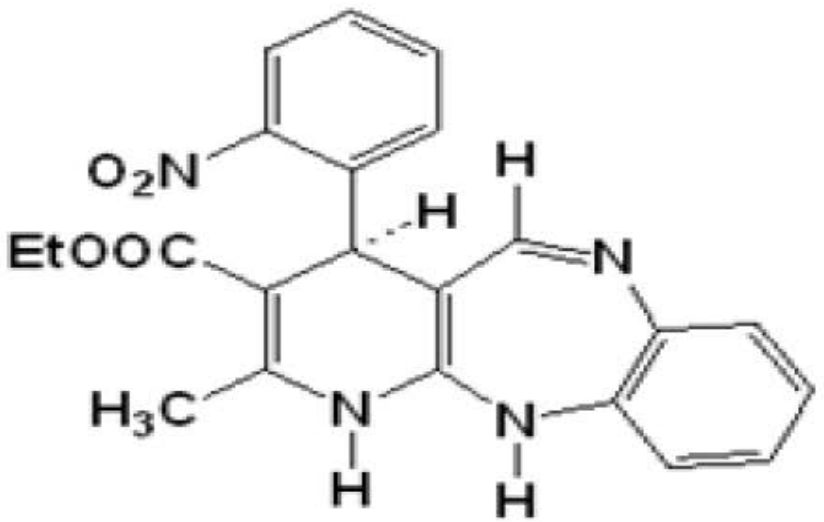
- **Brassinostereroids**
- **Center of Natural Product (CEPN)**

FQ: SOME PRODUCTS OF SCIENCE

JM 20 (Code)

Cerebral ischemia and neurodegenerative diseases.

- **Heterocyclic compounds.**
- **Neurochemistry Group.**



FQ-UH, 1979
(NEW RESEARCH CENTERS)

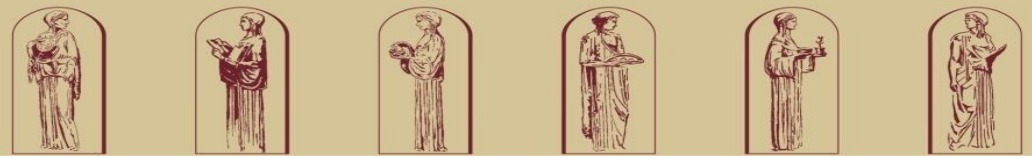
IMRE (Institute of Science and Tecnologoly of Materials, 1985)

BIOMAT (Center of Biomaterials, 1991)

LAGS (Center of Synthetic Antigens, 1994)

VACCINE INSTITUTE "CARLOS J. FINLAY“ 2015

CPN (Center of Natural Product, 1994)



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 Tecnologoly 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)

NETWORK MADIMED-UH
(NODE RESEARCH)

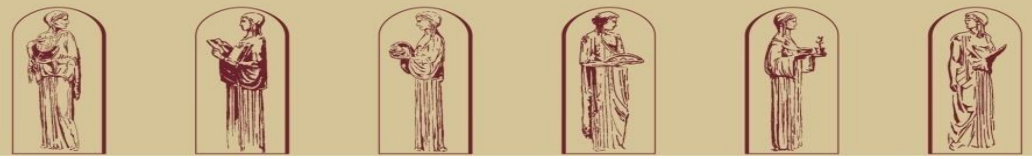
DIAGNOSTIC /
DEVICE

DRUGS /
COSMECEUTICAL

BIOMATERIALS

NANOMATERIALS /
NANOTECNOLOGY

NOTE: NETWORK BIOMED / NODE "BIOMOLECULES"



ENVIRONMENT

Main environmental problems (National Environmental Strategy 2010-2015)

- **Degradation of soils (erosion, bad drainage, salinity, compaction, etc.)**
- **Damages in forest coverage**
- **Pollution: liquid wastes, solid wastes, atmospheric emissions and acoustic pollution, chemicals and dangerous wastes.**
- **Lack of water and problems with its availability and quality**
- **Loss of biodiversity**
- **Impacts of climate change**

General Actions in UH

Explicit inclusion of the environmental approach in the Educational Strategies of each Faculty or School.

Preparation of the Environmental Strategy of each Faculty, School or Research Center.

Optional or Elective subjects to be selected by students of any Faculty: Chemistry and Environment, Environmental Sociology, Environmental Law, Cuban Biodiversity, Communication and Environment,etc.

Subject: 'National Security': Includes Risk Management

UNDERGRADUATE

General Actions (Cont.)

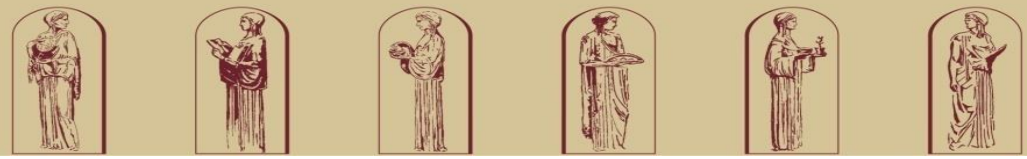
Master´s Program in Integrated Coastal Zone Management (strong interdisciplinary and integrated approach).

Master's Program in Environment and Development.

Master's Program in Population, Environment and Local Development.

Master's Program in Caribbean Studies (includes climate change, communities and environment in the Caribbean)

POSTGRADUATE



FACULTY OF CHEMISTRY

EXAMPLES

Main lines of research :

- Undergraduate and postgraduate students.
- Network of collaborating centers

Quality assessment of water in marine and freshwater ecosystems.

Bioregulators of vegetal growth

Development of materials for the purification of fresh water

Modification of natural materials for decontamination of waste water

EXAMPLES

Main lines of research : (Cont.)

- Undergraduate and postgraduate students.
- Network of collaborating centers

Development of biosensors for the detection and determination of pollutants, drugs and other pharmaceuticals.

Methodologies for the determination of metals, pesticides and other pollutants in environmental samples and biological fluids.

Renewable sources of energy (H_2, solar cells)

PROPOSALS OF COLLABORATION WITH RUTGERS --- CAMDEN

I. Workshop: Environmental science: dynamics of coupled natural and human systems

An integrated scientific framework for studying the reciprocal interactions between humans (e.g., social or economic) and natural (e.g., atmospheric, hydrologic of biological) systems on Earth.

II. Symposia in Havana in summer of 2017

These are two symposia offered by the Cuban researchers in the last summer. They include a Symposium on Molecular Design and Bioinformatics, offered in Cuba from July 9 to 14, 2017 and a Symposium on Materials, Device and Drug, Cuba, July 3 to 7, 2017.

III. Individual collaborative research projects:

- Computational strategies to guide the identification of anti-Alzheimer and anti-Parkinson compounds (Luis Montero-Cabrera, UH, Yoanna Álvarez, UH, Erix W. Hernández, UH, and Lourdes A. Díaz, UH, Grace Brannigan, RUC, Hao Zhu, RUC)

- Lead Determination in water (David Salas de la Cruz, RUC, Dionisio Zaldivar UH, Ana Margarita Esteva, UH, and Brandi Blessett, RUC)

- Development of micro and nano-systems for medical applications (RUC, RU-NB, Dionisio Zaldivar, UH, Loreley Morejon Alonso UH)

III. Individual collaborative research projects (cont.):

- Characterization of Water, Soil and Sediments and Its influence in Health (Cristina Diaz, UH, Patricia Gonzalez Hernandez, UH, Beatriz Romeu, UH, Irina Salgado, UH, David Salas de la Cruz, RUC)

- Remediation of wastewater using Natural-Based Material (Cristina Diaz, UH, Maria Isabel Sanchez, UH, David Salas de la Cruz, RUC,)

IV. Student visiting researchers from University of Havana to Rutgers University, Camden

THANK YOU

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