



**TOGETHER**  
*for a sustainable future*

## OCCASION

This publication has been made available to the public on the occasion of the 50<sup>th</sup> anniversary of the United Nations Industrial Development Organisation.



**TOGETHER**  
*for a sustainable future*

## DISCLAIMER

This document has been produced without formal United Nations editing. The designations employed and the presentation of the material in this document do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations Industrial Development Organization (UNIDO) concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries, or its economic system or degree of development. Designations such as “developed”, “industrialized” and “developing” are intended for statistical convenience and do not necessarily express a judgment about the stage reached by a particular country or area in the development process. Mention of firm names or commercial products does not constitute an endorsement by UNIDO.

## FAIR USE POLICY

Any part of this publication may be quoted and referenced for educational and research purposes without additional permission from UNIDO. However, those who make use of quoting and referencing this publication are requested to follow the Fair Use Policy of giving due credit to UNIDO.

## CONTACT

Please contact [publications@unido.org](mailto:publications@unido.org) for further information concerning UNIDO publications.

For more information about UNIDO, please visit us at [www.unido.org](http://www.unido.org)

22173

FINAL REPORT

WORKSHOP ON COMBINATORIAL  
CHEMISTRY AND COMBINATORIAL  
TECHNOLOGIES

BUENOS AIRES  
DECEMBER 7-11 1998

UNIDO PROJECT N°: TF/GLO/96/105

CONTRACT N°: 98/270

## **Objective**

The main objectives of the proposed Workshop are as follows:

- to transfer the information on combinatorial technologies available so far from industrialized countries to scientists and technologists of various companies (pharma, agro, etc.) of Latin American countries.
- to bring experts from universities, R&D institutions and industry interested in combinatorial technologies in order to build awareness on industrial applications of CC/CT;
  - To identify regional R&D institutions in Latin-American countries through contacts established with the participants in this Workshop
  - To supply information to ICS useful for the possible identification of qualified centres to be considered as future co-operative institutions for ICS Network
- to evaluate possible proposals of follow-up project or feasibility studies under the ICS co-ordination;

## **Organization**

This workshop was jointly organized by the International Centre for Science and High Technology (ICS), INGEBI (Research Institute on Genetic Engineering and Molecular Biology, Argentina) and National University of Quilmes (UNQ, Argentina). The local organizers were:

- Prof. Adolfo Iribarren (INGEBI - University of Quilmes), Chairman.
- Prof. Ernesto G. Mata (University of Rosario).
- Prof. Elisabeth Lewkowicz (University of Quilmes).

The scientific committee consisted of local and international scientists who advised organizers about the content of the scientific programme. This committee included the following scientists:

- Prof. Adolfo Iribarren (INGEBI - University of Quilmes, Argentina)
- Prof. Stanislav Miertus (ICS, Trieste, Italy)
- Dr. Giorgio Fassina (Technogen, Italy)

- Dr. Cinzia Traboni (IRBM, Italy)

### **Venue dates**

The workshop was held in Buenos Aires, Argentina, at the Research Institute on Genetic Engineering and Molecular Biology, INGEBI (CONICET), from 7 to 11 December 1998.

### **Funding**

The total contribution from UNIDO was U\$S 36900, but due to cheaper air-tickets, lodging and boarding expenses and also to the actual number of participants and speakers the real expenses accounted U\$S 31656.5. The total amount received from UNIDO was U\$S 29257.3. The resultant balance is U\$S 2399.2.

INGEBI and UNQ provided lecture halls, audio-visual equipment, secretarial services, telephones and faxes

A summary of the final budget is given in Appendix 1.

### **Lecturers**

A total of 8 lecturers participated in the workshop. Lecturers were from different institutions and countries. (Table 1)

Table 1. Lecturers of the workshop.

<b>Lecturer</b>	<b>Institution</b>	<b>Country</b>
S. Miertus	ICS	Italy
G. Fassina	Technogen	Italy
E. Mata	Univ. of Rosario	Argentina
A. Missio	Glaxo-Wellcome	Italy
A. Iribarren	INGEBI - UNQ	Argentina
D. Cicero	IRBM	Italy
A. Tramantano	IRBM	Italy
C. Traboni	IRBM	Italy

## **Social Events**

Several social events were organized during the workshop with the presence of lecturers, participants and organizers:

A welcoming Lunch at INGEBI (December 7th., at noon)

A trip around Buenos Aires (December 8th.)

A visit to Biosidus (local pharmaceutical company) (December 9th.)

## **Assessment**

The workshop was assessed by the participants via anonymous and optional questionnaire. A summary of this evaluation is given in Appendix 4. Participant's evaluation of the organization of the workshop has been from very good to excellent.

Most of the participants consider the duration of the programme "just right". About the quality of the lectures, again the evaluation ranged from very good to excellent. All participants would recommend to others to attend a similar activity in the future.

Every participant stressed their benefit from participation on this workshop.

Most also remarked that the topics presented could be useful for local industries.

## **Results**

As can be evaluated from the questionnaire filled by the participants, the workshop was very successful. A greater awareness of combinatorial chemistry and combinatorial technologies has been achieved.

A regional network on Combinatorial Chemistry and Combinatorial Technologies is now in preparation. The final idea is to generate a web info directory linked to ICS-UNID global network.

As a consequence of this workshop the utility of this new technology was more clearly understood by the private sector and therefore, a regional project proposal which involves several local industries is also in preparation. This project deals mainly with

the development of new drugs, the generation of new diagnostic kits and the optimization of purification processes important for biotechnological companies.

## Appendix 1

### Summary of the final budget

<b>Description</b>	<b>Amount in US Dollar, as estimated in the ToR</b>	<b>Actual expenses</b>
Transport	2,000	2,005.00
Accommodation of invited speakers	7,200	7,510.00
Accommodation of international participants	8,500	6,177.00
Accommodation of participants from the country	2,000	2,335.00
Travel of invited international speakers	9,200	8,735.50
Travel of international participants	8,000	4,894.00
<b>TOTAL</b>	<b>36,900</b>	<b>31,656.50</b>
Total amount received from UNIDO		29,257.30
<b>Balance</b>		2399.20

## Appendix 2

1. Alberto Postigo  
Department of Organic Chemistry, University of Cordoba  
Phone: 051 334170  
Fax: 051 33 3030  
E-mail: [albertp@dco.fcq.unc.ar](mailto:albertp@dco.fcq.unc.ar)  
Argentina
2. Monteagudo Edith  
Menari Cicerche  
Phone: 039 06 91184428  
Fax: 039 06 9106137  
E-mail: [vt6400@programatic.it](mailto:vt6400@programatic.it)  
Italia
3. Segovia Lorenzo  
Instituto de Biotecnología Universidad Autónoma de Mexico, Depto. De  
reconocimiento Molecular y Bioestructura  
Phone: 52 73 291862  
Fax: 52 73 172388  
E-mail: [lorenzo@ibt.unam.mx](mailto:lorenzo@ibt.unam.mx)  
México
4. Araujo Dias Ricardo  
Universidade Federal de Sao Carlos  
Depto. De Química, Centro de Ciencias Exatas e Tecnologia  
Phone: 55 16 2608215  
Fax: 55 16 2608281  
E-mail: [ricardo@dq.ufscar.br](mailto:ricardo@dq.ufscar.br)  
Brasil
5. Mandolesi Marcus  
Universidade Federal de Santa Catarina  
Depto. De Química-Centro de Ciências Físicas e Matemáticas  
Phone: 55 48 3319219-231  
E-mail: [msa@qmc.ufsc.br](mailto:msa@qmc.ufsc.br)  
Brasil



6. Balañá María  
Fundación Pablo Casara Industry  
Depto Molecular Endocrinology  
Phone: 54 1 783 2869  
Fax: 54 1 786 3268  
E-mail: [balana@iname.com](mailto:balana@iname.com)  
Argentina
7. Piatti Susana  
Maprimed Industry  
Depto. Investigación y desarrollo  
Phone: 54 1 686 1440  
Fax: 54 1 686 5028  
E-mail: [gamorin@garzon.maprimed.com.ar](mailto:gamorin@garzon.maprimed.com.ar)  
Argentina
8. Vila Alejandro  
Universidad Nacional de Rosario  
Depto Biological Chemistry  
Phone: 54 41 350661  
Fax: 54 41 390465  
E-mail: [vila@arnet.com.ar](mailto:vila@arnet.com.ar)  
Argentina
9. Furlan Ricardo  
Universidad Nacional de Rosario  
Depto. Química orgánica  
Phone: 54 41 804600  
Fax: 54 41 370477  
E-mail: [iquiosra@citynet.net.ar](mailto:iquiosra@citynet.net.ar)  
Argentina
10. Rasia Adolfo  
Universidad Nacional de Rosario  
Depto. Biological Chemistry  
Phone: 54 41 350661  
Fax: 54 41 390465  
E-mail: [rrasia@cablenet.com.ar](mailto:rrasia@cablenet.com.ar)  
Argentina
11. Machicado Rivero Claudia Inés  
Universidad Peruana Cayetano Heredia  
Phone: 511 460 6650  
E-mail: [machi@upch.edu.pe](mailto:machi@upch.edu.pe)  
Perú

12. González Gualberto  
Facultad de Química-Universidad de la República (Uruguay)  
Depto. Cátedra de Inmunología  
Phone: 5982 4801196  
Fax: 5980 4874320  
E-mail: [ggonzal@bilbo.edu.uy](mailto:ggonzal@bilbo.edu.uy)  
Uruguay
  
13. Mahler Graciela  
Universidad de la República Oriental del Uruguay  
Depto Cátedra de Química Farmacéutica  
Phone: 5982 924 1845  
Fax: 5982 924 1906  
E-mail: [gmahler@bilbo.edu.uy](mailto:gmahler@bilbo.edu.uy)  
Uruguay
  
14. Gamenara Daniela  
Universidad de la Republica Oriental del Uruguay  
Depto Cátedra de Química Orgánica  
Phone: 5982 9244066  
Fax: 5982 9241906  
E-mail: [dgamenar@bilbo.edu.uy](mailto:dgamenar@bilbo.edu.uy)  
Uruguay
  
15. Ricondo Luis Javier  
Center for Genetic Engineering and Biotechnology  
Depto. Synthetic Peptides, Division of Physical Chemistry  
Phone: 53 7 218008/ 218466  
Fax: 53 7 218070/ 336008  
E-mail: [oreyes@cigb.edu.cu](mailto:oreyes@cigb.edu.cu)  
Cuba
  
16. Reyes Acosta Osvaldo  
Center for Genetic Engineering and Biotechnology  
Depto. Synthetic Peptides, Division of Physical Chemistry  
Phone: 53 7 218008/ 218466  
Fax: 53 7 218070/ 336008  
E-mail: [oreyes@cigb.edu.cu](mailto:oreyes@cigb.edu.cu)  
Cuba

17. Sacca Paula  
INGEBI  
Phone: 54 1 783 2871  
Fax: 54 1 786 8578  
E-mail: [psacca@proteus.dna.uba.ar](mailto:psacca@proteus.dna.uba.ar)  
Argentina
18. Lenkowicz Elisabeth  
Universidad Nacional de Quilmes  
Depto. Ciencia y Tecnología  
Phone: 54 1 365 7100 int.123  
E-mail: [clewko@mail.unq.edu.ar](mailto:clewko@mail.unq.edu.ar)  
Argentina
19. Iglesias Luis  
Universidad Nacional de Quilmes  
Depto. Ciencia y Tecnología  
Phone: 54 1 365 7100 int.123  
E-mail: [leiglesias@mail.unq.edu.ar](mailto:leiglesias@mail.unq.edu.ar)  
Argentina
20. Zunszain Patricia  
Facultad de Ciencias Exactas y Naturales-UBA  
Depto. Química Orgánica  
Phone: 54 1 576 3346  
E-mail: [zunszain@quimor.qo.fcen.uba.ar](mailto:zunszain@quimor.qo.fcen.uba.ar)  
Argentina
21. Santa Coloma Tomas  
Fundación Campomar  
Depto. Instituto de Investigaciones Bioquímicas  
Phone: 54 1 863 4016  
E-mail: [tasc@lap107.iib.uba.ar](mailto:tasc@lap107.iib.uba.ar)  
Argentina
22. Viegas Marcelo  
Laboratorios Beta Industry  
Phone: 54 1 785 4880  
Argentina
23. María Teresa Federici Rodriguez  
INIA Las Brujas, Uruguay  
Phone: 0598 23677641  
Fax:0598 2 3677609  
E-mail: [federici@adinet.com.uy](mailto:federici@adinet.com.uy)/[maritefe@hotmail.com](mailto:maritefe@hotmail.com)  
Uruguay

24. Carolina Reyes  
INIA Las Brujas, Uruguay  
Phone: 0598 23677641  
Fax:0598 2 3677609  
E-mail:  
Uruguay

25. Néstor Anibaldi  
Laboratorios Beta Industry  
Phone: 54 1 785 4880  
Argentina

December 9

- 9.00-10.00 "Analytical Tools by NMR for the characterization of combinatorial libraries"  
Daniel Cicero, IRBM, Italy
- 10.00-11.00 "Assesing the biological properties of combinatorial libraries by NMR".  
Daniel Cicero, IRBM, Italy
- 11.00-11.30 Coffee break
- 11.30-12.30 Application of CC/CT: A case study. G. Fassina, TECNOGEN
- 12.30-14.00 Lunch
- 14.00-14.30 Discussion Session
- 14.30-18.00 Visit to Biosidus

December 10

- 9.00-10.00 Computational methods for the analysis and interpretation of peptide library results  
Anna Tramantano, IRBM, Italy
- 10.00-11.00 Biological libraries: methods for construction and selection  
Cinzia Traboni, IRBM, Italy
- 11.00-11.30 Coffe break
- 11.30-12.30 Designing appropriate protein scaffolds for conformationally constrained libraries.  
Anna Tramontano, IRBM, Italy
- 12.30-14.00 Lunch
- 14.00-15.00 Biological libraries: applications  
Cinzia Traboni, IRBM, Italy
- 15.00-16.00 Exploring peptide libraries to overcome viral variability  
Anna Tramantano, IRBM, Italy
- 16.00-16.30 Coffee break
- 16.30-17.30 Biological libraries: perspectives for therapy.  
Cinzia Traboni, IRBM, Italy
- 17.30-18.00 Discussion Session

December 11

- 9.00-10.00 Economics of Combinatorial Chemistry  
G.Fassina, Tecnogen
- 10.00-10.30 Coffee break
- 10.30-12.30 Contry and Institutional Reports  
Workshop participants
- 12.30-14.00 Lunch
- 14.00-15.00 Discussion on possible common Initiatives  
G.Fassina, A.Iribarren, E.Mata, S. Miertus
- 15.00-16.30 Workshop evaluation S. Miertus
- 16.30-18.00 Workshop closes and coffee

## Appendix 4

### Summary of the questionnaire

A. Organization	Excellent	Very good	Good	Fair
Information process	19%	44%	31%	6%
Announcement	20%	20%	40%	20%
Scientific programme	56%	44%	0%	0%
Applied lecture/workshop	44%	44%	12%	0%
Small working groups	50%	25%	12.5%	12.5%
Case studies	37.5%	44%	18.5%	0%
Question of time	44%	44%	12%	0%
		Balance		Not Balance
Students scientific knowledge		71%		29%

B. Duration of Programme	Just Right	Too Long	Too short
Number of days	87.5%	12.5%	0%
Length of working days	94%	6%	0%

C. Training Facilities and Hotel	Excellent	Very Good	Good	Fair
Lecture/Training rooms	33%	47%	20%	0%
Breaks/refreshments	13%	60%	27%	0%
Hotel accommodation	15.5%	61.5%	23%	0%
Meals at hotel	11%	44.5%	44.5%	0%

	Excellent	Very Good	Good	Fair
D. Organizer's response to participants needs	71.5%	28.5%	0%	0%
F. Overall programme organization	50%	50%	0%	0%

	Yes	May be	No
F. Would you recommend to others from institution to attend a similar activity in the future?	100%	0%	0%

G. Evaluation of Lecturers and Speakers	Excellent	Very good	Good	Fair
Course materials	26.5%	53.5%	6.5%	13%
Resident lecture presentation	47%	41%	6%	6%
International presentation	56%	44%	0%	0%
Ability to answer specific questions	73%	27%	0%	0%