

To: Prof. Sybren de Hoog, President ISHAM

From: Prof. Gioconda San-Blas, Coordinator Working Group

Subject: **ISHAM Working Group on *Paracoccidioides brasiliensis*, Molecular Biology, Report of activities**

Date: 02 October, 2008

**ISHAM Working Group on *Paracoccidioides brasiliensis*, Molecular Biology**

**1<sup>st</sup>. Report of activities**

The aim of this network is to bring together the expertise of several groups that work in Brazil and Venezuela on this fungus, with emphasis on (a) Molecular aspects of dimorphism and virulence; (b) Genes related to virulence of *P. brasiliensis*; (c) Target genes of *P. brasiliensis* to search for inhibitors; and (d) Experimental antifungals.

Progresses are being made on the different lines included in our 2006 proposal to create the Working Group. So far, none of the researchers involved has requested financial help to ISHAM, with the exception of Gioconda San-Blas, who received a modest stipend to partially cover expenses for the 6<sup>th</sup> Virtual Congress-Antifungal Antibiotics (see below).

**Researchers involved:**

**Gioconda San-Blas, Gustavo Niño-Vega, and Gonzalo Visbal**, Instituto Venezolano de Investigaciones Científicas (IVIC, Caracas, Venezuela; [sanblasg@ivic.ve](mailto:sanblasg@ivic.ve) , [gnino@ivic.ve](mailto:gnino@ivic.ve) , [gvisbal@ivic.ve](mailto:gvisbal@ivic.ve)

**Maria Sueli Felipe and Ildinete Silva Pereira**, Universidade de Brasilia, Brazil, [msueli@unb.br](mailto:msueli@unb.br) , [xocolau@unb.br](mailto:xocolau@unb.br)

**Célia Soares, Maristela Pereira, Silvia Maria Salem Izacc, Clayton Luiz Borges, Alexandre Melo Bailão, Nadya da Silva Castro, Lidiane Aparecida da Penha Santana, Patrícia Zambuzi, Benedito Rodrigo Neto** - Universidade de Goiás, Goiania, Brazil; [celia@icb.ufg.br](mailto:celia@icb.ufg.br) , [mani@icb.ufg.br](mailto:mani@icb.ufg.br)

**Scopes:****(a) Molecular aspects of dimorphism and virulence**

- Molecular analysis of the different domains of alpha-1,3-glucan synthase and their specific role during the synthesis of virulence-related alpha-1,3-glucan in *P. brasiliensis*.
- Transcriptome analyses of *P. brasiliensis* under nutritional and oxidative stress, *in vitro* or while infecting the host. Promoters of highly expressed genes under such conditions.

**(b) Genes related to virulence of *P. brasiliensis***

- Interactome of *P. brasiliensis* as a means to identify the molecules interactions that may have effect on the fungal virulence. For that purpose we will use two-hybrid screens to determine the interactome during the fungus infection in an animal model.

**(c) *Paracoccidioides brasiliensis* postgenome**

RNA interference (RNAi) for validation of antifungals and search of antifungal peptides.

**(d) Gene expression and host-pathogen interactions by cDNA microarrays:**

macrophages versus *Paracoccidioides brasiliensis* / *Histoplasma capsulatum*.

**(e) Target genes of *P. brasiliensis* to search for inhibitors**

Obtain the recombinant proteins *Pbfks1*, chitinase (*Pbcts1*) and glucanase (*Pbglc1*), enzymes involved in cell wall metabolism, and C-24 sterol methyl-transferase (*Pberg6*), malate synthase (*Pbmls1*) and isocitrate lyase (*Pbic11*).

**(f) Experimental antifungals**

- Effect of sterol-hydrazones and similar derivatives on growth of *P. brasiliensis*.

**PUBLICATIONS 2007-SEPTEMBER 2008**

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[San-Blas G, Niño-Vega G.](#) *Paracoccidioides brasiliensis*: chemical and molecular tools for research on cell walls, antifungals, diagnosis, taxonomy. Mycopathologia. 2008 Apr-May;165(4-5):183-95.

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- [Silva SS, Tavares AH, Passos-Silva DG, Fachin AL, Teixeira SM, Soares CM, Carvalho MJ, Bocca AL, Silva-Pereira I, Passos GA, Felipe MS.](#) Transcriptional response of murine macrophages upon infection with opsonized *Paracoccidioides brasiliensis* yeast cells. *Microbes Infect.* 2008 Jan;10(1):12-20. Epub 2007 Oct 2.
- [Costa M, Borges CL, Bailão AM, Meirelles GV, Mendonça YA, Dantas SF, de Faria FP, Felipe MS, Molinari-Madlum EE, Mendes-Giannini MJ, Fiuza RB, Martins WS, Pereira M, Soares CM.](#) Transcriptome profiling of *Paracoccidioides brasiliensis* yeast-phase cells recovered from infected mice brings new insights into fungal response upon host interaction. *Microbiology.* 2007 Dec;153(Pt 12):4194-207.
- [Santos GD, Ferri PH, Santos SC, Bao SN, Soares CM, Pereira M.](#) Oenothrin B inhibits the expression of PbFKS1 transcript and induces morphological changes in *Paracoccidioides brasiliensis*. *Med Mycol.* 2007 Nov;45(7):609-18.
- [Fernandes L, Paes HC, Tavares AH, Silva SS, Dantas A, Soares CM, Torres FA, Felipe MS.](#) Transcriptional profile of *ras1* and *ras2* and the potential role of farnesylation in the dimorphism of the human pathogen *Paracoccidioides brasiliensis*. *FEMS Yeast Res.* 2008 Mar;8(2):300-10. Epub 2007 Oct 9.
- [Xander P, Vigna AF, Feitosa Ldos S, Pugliese L, Bailão AM, Soares CM, Mortara RA, Mariano M, Lopes JD.](#) A surface 75-kDa protein with acid phosphatase activity recognized by monoclonal antibodies that inhibit *Paracoccidioides brasiliensis* growth. *Microbes Infect.* 2007 Oct;9(12-13):1484-92. Epub 2007 Aug 10.
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*Paracoccidioides brasiliensis* mycelium reveals novel and induced genes potentially associated to the dimorphic process. BMC Microbiol. 2007 Apr 10;7:29.

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[Niño-Vega G, Pérez-Silva C, San-Blas G.](#) The actin gene in *Paracoccidioides brasiliensis*: organization, expression and phylogenetic analyses. Mycol Res. 2007 Mar;111(Pt 3):363-9. Epub 2007 Jan 4.

**WORK IN PROGRESS BY MEMBERS OF THE ISHAM WG ON *Paracoccidioides brasiliensis*, MOLECULAR BIOLOGY, PRESENTED IN THE RECENT X<sup>th</sup> INTERNATIONAL CONGRESS ON PARACOCCIDIOIDOMYCOSIS, 07-10 August, 2008; Medellín, Colombia**  
<http://www.pcm2008.org/descargas/ProceedingsXInternatCongressPCM2008.pdf>

#### **PARTICIPATIONS IN SYMPOSIA**

Post-genomic contribution to the knowledge on the host-pathogen interaction:  
**María Sueli Felipe.** Departamento de Biología Celular, Instituto de Ciências Biológicas, Universidade de Brasília, Brasília, DF, Brazil.

Genes involved in morphogenesis and cell wall synthesis and regulation in *P. brasiliensis*:  
**Gustavo Niño.**  
 Centro de Microbiología y Biología Celular, Instituto Venezolano de Investigaciones Científicas (IVIC), Caracas, Venezuela.

Integrated genomics and proteomics strategies bring new insight into *P. brasiliensis* response upon host interaction: **Celia M. Soares.**  
 Laboratorio de Biología Molecular, Instituto de Ciências Biológicas, Universidade Federal de Goiânia, Goiânia, Brazil.

Virulence insights from the *P. brasiliensis* transcriptome: **Ildinete Silva Pereira.**  
 Departamento de Biología Celular, Instituto de Ciências Biológicas, Universidade de Brasília, Brasília, DF, Brazil.

Cell signaling in morphogenesis and virulence of *P. brasiliensis*:  
**Larissa Fernandes.**

New and experimental antifungal drugs: **Gioconda San-Blas.**  
 Centro de Microbiología y Biología Celular, Instituto Venezolano de Investigaciones Científicas (IVIC), Caracas, Venezuela.

Is *P. brasiliensis* an unique species? **María Sueli Felipe.**  
 Departamento de Biología Celular, Laboratorio de Biología Molecular, Universidade de Brasília, Brasília, DF, Brazil.

**POSTERS**

<b>4-02</b> p 165	<b>RNA interference: A potential tool to study gene function in <i>Paracoccidioides brasiliensis</i> - strategies to construct silencing cassettes</b> <u>Fernandes L</u> ; Paes HC; Teixeira MM; Rodrigues ACJ; Viana DF; Torres FA; Felipe MSS.
<b>4-03</b> p 166	<b>Development of vector-based RNA interference (RNAi) for <i>ade2</i> silencing on the pathogenic fungus <i>Paracoccidioides brasiliensis</i></b> Polez VPP; <u>Fernandes L</u> ; Torres FAG; Felipe MSS.
<b>4-04</b> p 166	<b>Protocol for establishment of <i>Paracoccidioides brasiliensis</i> RNA recovery from human pneumocytes cell culture</b> <u>Oliveira A</u> ; Silva SS; Souza CR; Felipe MS.
<b>4-07</b> p 168	<b>A high degree of polymorphism and recombination of the GP43 gene among phylogenetic species of <i>Paracoccidioides</i> genus</b> <u>Teixeira MM</u> ; Felipe MSS.
<b>4-08</b> p 168	<b>Virtual screening of <i>Paracoccidioides brasiliensis</i> genome – a new drug design approach</b> <u>Abadio AKB</u> ; Carvalho MJA; Martins NF; Felipe MSS.
<b>4-09</b> p 169	<b>Formamidase of <i>Paracoccidioides brasiliensis</i>: Cytolocalization, purification and analysis of the native protein</b> <u>Borges CI</u> ; Barbosa MS; Parente JA; Feitosa LS; Santana JM; Bão SN; Sousa MV; Richart CAO; Soares CMA.
<b>4-10</b> p 169	<b>Two subunits of <math>\beta</math>-1,3-glucan synthase complex: Gene expression (RHO1 and FKS1) and functionality (RHO1) in <i>Paracoccidioides brasiliensis</i></b> <u>Sorais E</u> ; Niño-Vega G; San-Blas G.
<b>4-11</b> p 170	<b><math>\beta</math>-1,3-glucan synthase: Recombinant protein, cytolocalization, activity and studies under stress condition</b> <u>Tomazett PK</u> ; Félix CR; Barbosa MS; Santana JM; Faria FP; Bão SN; Soares CMA; Pereira M.
<b>4-12</b> p 170	<b>The <math>\alpha</math>-amylase (AMY1) gene in <i>Paracoccidioides brasiliensis</i>, identification and semiquantitative expression</b> <u>Camacho E</u> ; Niño-vega G; San-blas G.
<b>4-14</b> p 171	<b>Molecular evidences of sexual reproduction in <i>P. brasiliensis</i></b> <u>Teixeira MM</u> ; Paes HC; Fernandes L; Silva SS; Felipe MSS.
<b>4-15</b> p 172	<b><math>\alpha</math>-1,3-glucanase is important in the remodelling of <i>Paracoccidioides brasiliensis</i> cell wall</b> <u>Villalobos H</u> ; Niño-vega G; San-blas G.
<b>4-16</b> p 172	<b>Characterization of <i>Paracoccidioides brasiliensis</i> Chs3 by overexpression in <i>Saccharomyces cerevisiae</i></b> <u>Barreto L</u> ; Sorais F; Niño-Vega G; San-blas G.
<b>4-18</b> p 173	<b>Niche specific regulation of <i>Paracoccidioides brasiliensis</i> genes in the infectious process</b> <u>Bailão AM</u> ; Borges CI; Chagas RF; Salem-Izaac SM; Pereira M; Soares CMA.

<b>4-22</b> p 175	Identification of <i>Paracoccidioides brasiliensis</i> adhesins through representational difference analysis Nogueira SV; <u>Bailão AM</u> ; Borges CI; Pereira M; Mendes-Giannini MJ; Winters M; Soares CMA.
<b>4-24</b> p 176	Use of <i>in vivo</i> -induced antigen technology in the identification of <i>Paracoccidioides brasiliensis</i> proteins potentially expressed during infection Rezende TCV; Dantas SFIM; Bailão AM; Castro NS; Tomazett MV; Deepe GS Jr.; Pereira M; <u>Soares CMA</u> .
<b>4-25</b> p 177	Changes in the transcription levels of <i>Paracoccidioides brasiliensis</i> CHS5 and CHS4 genes, mycelial phase, respond to external osmolarity Niño-vega G; <u>Sorais F</u> ; San-blas G.
<b>4-26</b> p 177	A <i>Paracoccidioides brasiliensis</i> aconitase is induced by ethanol and acetate and repressed by glucose as carbon sources <u>Brito WA</u> ; Castro NS; Pereira M; Soares CMA.
<b>4-27</b> p 178	Comparative analysis of gene expression during macrophages infection by pathogenic fungi ( <i>Paracoccidioides brasiliensis</i> and <i>Histoplasma capsulatum</i> ) <u>Silva SS</u> ; Felipe MSS.
<b>4-28</b> p 178	A serine protease S08 of <i>Paracoccidioides brasiliensis</i> is induced during infection of macrophages and nitrogen starvation <u>Parente JA</u> ; Bailão AM; Philippsen HK; Santana JM; Pereira M; Soares CMA.
<b>4-29</b> p 179	The high affinity copper transporter of <i>Paracoccidioides brasiliensis</i> is up-regulated during macrophage infection Santos RS; Bailão AM; Borges CI; Salem-Izacc SM; Dantas SFIM; Deepe GS Jr.; <u>Soares CMA</u> .
<b>4-31</b> p 180	Transcriptional profile of <i>Paracoccidioides brasiliensis</i> is induced by oenothain B, and antifungal agent from Brazilian savannah plant <i>Eugenia uniflora</i> Zambuzzi PF; Rezende RV; Borges CI; Ferri PH; Santos SC; Soares CMA; <u>Pereira M</u> .
<b>4-32</b> p 180	Transcriptional profile of murine macrophages infected with pathogenic fungus <i>Histoplasma capsulatum</i> <u>Silva SS</u> ; Passos-Silva DG; Teixeira SMR; Junta C; Medeiros AI; Silva CI; Faccioli FH; Passos GAS; Felipe MSS.
<b>4-34</b> p 181	Internalization of magnetic nanoparticles by <i>Paracoccidioides brasiliensis</i> yeast cells <u>Amaral AC</u> ; Braun S; Nunes ES; Bocca AI; Lima ECD; Bão SN; Azevedo RN; De Moraes PC; Felipe MSS.
<b>4-35</b> p 182	Molecular typing and evolution of the <i>Paracoccidioides</i> genus <u>Teixeira MM</u> ; Paes HC; Fernandes L; San-blas G; Felipe MSS.
<b>4-37</b> p 183	The heat shock factor of <i>Paracoccidioides brasiliensis</i> and its complementation of <i>Saccharomyces cerevisiae</i> <u>Paes HC</u> ; Matos LF; Teixeira MM; Torres FAG; Felipe MSS.
<b>5-05</b> p 189	Polymorphisms analysis of CTLA-4 gene in paracoccidioidomycosis patients Lozano VF; <u>Paes HC</u> ; Teixeira MM; Lins TCI; Vieira RG; Blotta MHSI; Goes AM; Pereira RW; Bocca AI; Felipe MSS.

<p><b>5-13</b> p 193</p>	<p>The influence of <math>\beta</math>-2 integrin in the fungal burden in <i>Paracoccidioides brasiliensis</i> infected mice Nunes J; Catão E; Fraga CIF; Amaral A; Figueiredo F; Felipe MSS; Faccioli LH; <u>Bocca AL</u>.</p>
<p><b>5-19</b> p 196</p>	<p>Comparative analysis of the infection evolution between isolates Pb 18 and Pb 01 of the <i>Paracoccidioides brasiliensis</i> Fraga CIF; Siqueira IM; Ribeiro AM; Nunes J; Figueiredo F; Felipe MSS; <u>Bocca AL</u>.</p>
<p><b>5-27</b> p 200</p>	<p>Therapeutic activity of a DNA vaccine using the gene Hsp65 from <i>Mycobacterium leprae</i> for experimental paracoccidioidomycosis <u>Ribeiro AM</u>, Souza ACO; Amaral AC; Fraga CIF; Nunes J; Salles BC; Coelho-Castelo AAM; Figueiredo F; Silva CI; Felipe MSS; Bocca AI.</p>
<p><b>6-03</b> p 206</p>	<p>Variable effect of caspofungin on the mycelial and yeastlike phases of several strains of <i>Paracoccidioides brasiliensis</i> <u>Rodríguez-Brito S</u>; Niño-vega G; San-Blas G.</p>
<p><b>6-05</b> p 207</p>	<p>Amphotericin B-PLGA-DMSA nanoparticle: A new alternative to treat paracoccidioidomycosis <u>Amaral AC</u>; Bocca AI; Ribeiro AM; Nunes J; Falcomer CI; Peixoto DIG; Simioni AR; Pinto FI; Lacava ZGM; Azevedo RB; Titze-De-Almeida R; Tedesco AC; De Moraes PC; Felipe MSS.</p>
<p><b>6-06</b> p 207</p>	<p>Fungicidal activity of amphotericin B-magnetic fluid conjugate in vitro against <i>Paracoccidioides brasiliensis</i> Medeiros PB; <u>Amaral AC</u>, Saldanha CA; Bocca AI; Guilherme RB; Silva JR; Nunes ES; Lima ECD; Azevedo RB; De Moraes PC; Felipe MSS.</p>
<p><b>6-07</b> p 208</p>	<p>PLGA-P10 conjugate improved 20-times the immunological protection of this peptide against <i>Paracoccidioides brasiliensis</i> <u>Amaral AC</u>, Marques AF; Muñoz JE; Bocca AI; Simioni AR; Titze-De-Almeida R; Tedesco AC; De Moraes PC; Tabora CP; Travassos LR; Felipe MSS.</p>
<p><b>6-09</b> p 209</p>	<p>Antagonistic effect of farnesol, a <i>Candida albicans</i> quorum sensing molecule, on <i>Paracoccidioides brasiliensis</i> growth and morphogenesis <u>Derengowski LS</u>; Braz SV; De-Souza-Silva C; Mello-De-Sousa TM; Bão SN; Kyaw CM, Silva-Pereira I.</p>
<p><b>6-10</b> p 209</p>	<p>Killing of <i>Paracoccidioides brasiliensis</i> yeast cells by magnetic hyperthermia <u>Amaral AC</u>; Braun S; Nunes ES; Bocca AI; Lima ECD; Azevedo RB; De Moraes PC; Felipe MSS.</p>

**6<sup>TH</sup> VIRTUAL MYCOLOGICAL CONGRESS – ANTIFUNGAL ANTIBIOTICS**  
**16-30 October 2007**

<http://www.sanblas-mycology.org/vicongress/>

This congress was partially sponsored by ISHAM.

**Organizing Committee:**

General Coordinator / Coordinator of the Biology Section:

**Gioconda San-Blas, Venezuela**

Coordinator of the Clinical Section:

**Arnaldo Colombo, Brazil**

**Academic Committee:**

**Flavio Queiroz de Telles, Brazil**

**Hilda Romero, Venezuela**

**Julman Cermeño, Venezuela**

**Mireya Mendoza, Venezuela**

**Vera Reviakina, Venezuela**

**Ricardo Negroni, Argentina**

The program was as follows:

**CONFERENCES:**

**Annette W. Fothergill.** Antifungal Susceptibility Testing: Yeast Trends and CLSI Updates.

**John R Graybill.** Milestones of Our Progress toward Modern Antifungal Therapy

**Marcel Borgers et al.** Past, Present and Future Antifungals

**Richard Calderone et al.** Virulence Factors as Drug Targets: the how and why

**Gonzalo Visbal and Gioconda San-Blas.** Azasterols as potential antifungal antibiotics

**Juan Murgich and Héctor Franco.** Molecular Models of Some Fungal Antibiotics

**Luiz Travassos and Carlos Taborda.** Peptide Immunization as an Adjuvant to Fungal Chemotherapy

**Juan Luis Rodríguez-Tudela et al.** Detection of Resistance in Filamentous Fungi

**Patrick Van Dijck.** Nutrient Sensing G Protein coupled receptors: Interesting targets for antifungals?

**COMMUNICATIONS**

**María Eugenia Bosco-Borgeat et al.** Development of Fluconazole Resistance in *Cryptococcus neoformans*

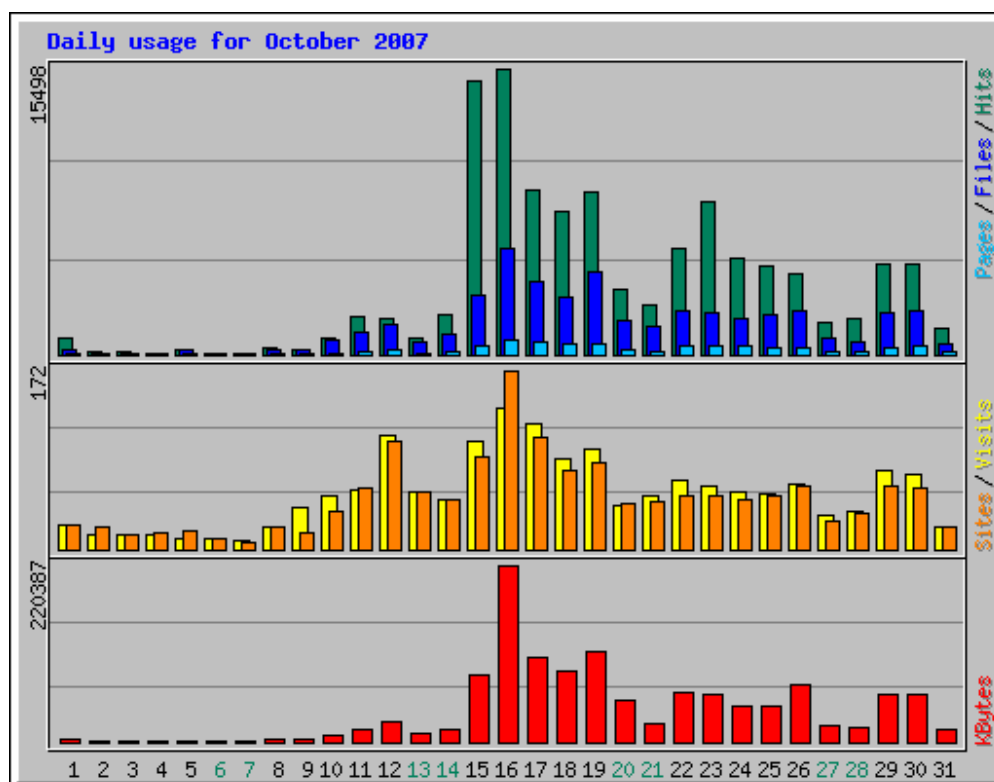
**Laura Marcela Machuca et al.** Synthesis and Biological Evaluation of New Antifungal Agents from Amides. Preliminary work

**María Mercedes Panizo et al.** *In vitro* susceptibility profile of *Candida* spp. to four antifungal agents. Resistance surveillance study in Venezuelan strains

**Sabrina Rodríguez-Brito et al.** Effect of caspofungin on mycelial and yeastlike growth of *Paracoccidioides brasiliensis*

- Soffia Selgrad et al.** Incidence and antifungal susceptibility of *Candida* spp. isolated in patients from Neonatal Intensive Care Units with candidemia and candiduria (2006-2007)
- Gonzalo Visbal et al.** A new inhibitor of  $\Delta^{24}$ - sterol methyl transferase as potential antifungal against *Paracoccidioides brasiliensis*
- Alfonso Javier Carrillo Muñoz et al.** Terbinafine susceptibility pattern of onychomycosis causative dermatophyte species and *Scopulariopsis brevicaulis*
- Julman Cermeño et al.** *In vitro* susceptibility of isolates of *Paracoccidioides brasiliensis* to Itraconazole and Voriconazole
- Carolina Pereira-Silveira et al.** In Vitro susceptibility to amphotericin B, fluconazole, voriconazole and posaconazole of *Cryptococcus neoformans* Venezuelan strains by Clinical and Laboratory Standards Institute Broth Microdilution Method
- Guillermo Quindós et al.** Activities of fluconazole, itraconazole and voriconazole against bloodstream isolates of *Candida glabrata* and *Candida krusei*: a 14-year study in a Spanish tertiary medical center
- Roxana Vitale et al.** In vitro activity of antifungal drugs against clinical isolates of *Cladophialophora carrionii*
- Maximiliano Sortino et al.** Antifungal activity of cyclic imides. Stability in the culture media. Interaction with maleamic acids

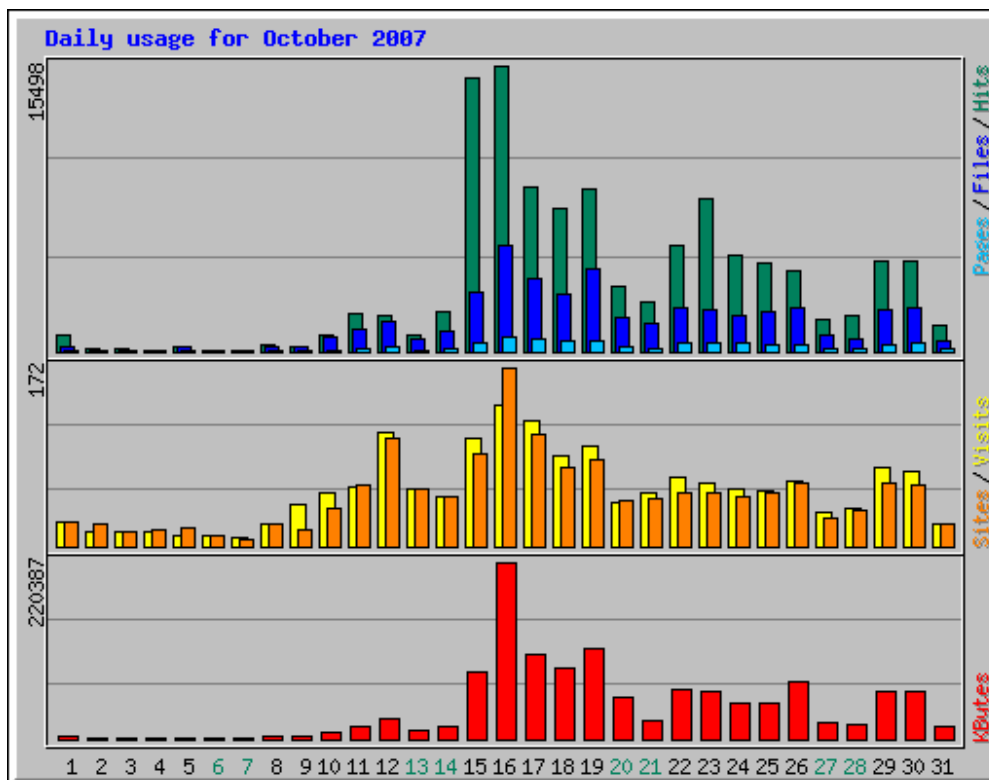
Usage statistics follow:



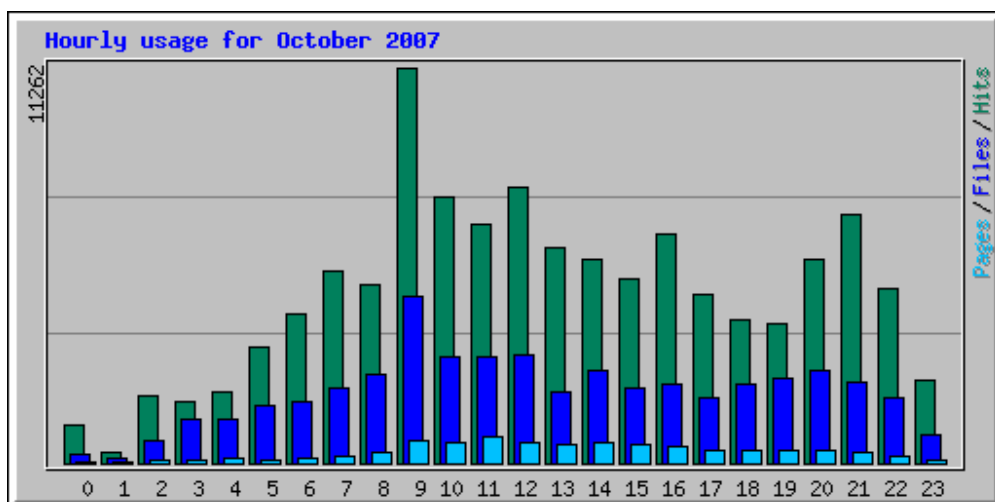
## Usage Statistics for sanblas-mycology.org/vicongress

Summary Period: October 2007  
Generated 31-Oct-2007 13:09 VET

Monthly Statistics for October 2007		
Total Hits	115450	
Total Pages	7863	
Total Visits	1652	
	Avg	Max
Hits per Hour	155	3338
Hits per Day	3724	15498
Pages per Day	253	741
Visits per Day	53	135



Daily Statistics for October 2007												
Day	Hits		Files		Pages		Visits		Sites		KBytes	
1	844	0.73%	316	0.65%	54	0.69%	24	1.45%	23	2.66%	3238	0.26%
2	123	0.11%	93	0.19%	16	0.20%	14	0.85%	21	2.42%	905	0.07%
3	205	0.18%	99	0.20%	22	0.28%	14	0.85%	14	1.62%	844	0.07%
4	27	0.02%	13	0.03%	16	0.20%	14	0.85%	16	1.85%	32	0.00%
5	304	0.26%	273	0.56%	21	0.27%	11	0.67%	17	1.96%	2027	0.16%
6	42	0.04%	16	0.03%	13	0.17%	10	0.61%	11	1.27%	91	0.01%
7	18	0.02%	5	0.01%	10	0.13%	9	0.54%	7	0.81%	78	0.01%
8	321	0.28%	238	0.49%	43	0.55%	22	1.33%	22	2.54%	3444	0.28%
9	267	0.23%	260	0.54%	74	0.94%	41	2.48%	15	1.73%	2557	0.21%
10	874	0.76%	750	1.55%	89	1.13%	52	3.15%	37	4.27%	9310	0.75%
11	2039	1.77%	1171	2.41%	138	1.76%	57	3.45%	59	6.81%	15316	1.24%
12	1989	1.72%	1670	3.44%	215	2.73%	109	6.60%	104	12.01%	26302	2.13%
13	878	0.76%	719	1.48%	97	1.23%	56	3.39%	56	6.47%	9704	0.79%
14	2134	1.85%	1138	2.35%	128	1.63%	48	2.91%	48	5.54%	15392	1.25%
15	14840	12.85%	3224	6.64%	519	6.60%	103	6.23%	88	10.16%	84386	6.84%
16	15498	13.42%	5698	11.74%	741	9.42%	135	8.17%	172	19.86%	220387	17.87%
17	8858	7.67%	3934	8.11%	717	9.12%	121	7.32%	108	12.47%	105477	8.55%
18	7761	6.72%	3121	6.43%	574	7.30%	87	5.27%	76	8.78%	88128	7.15%
19	8843	7.66%	4513	9.30%	576	7.33%	96	5.81%	84	9.70%	113708	9.22%
20	3530	3.06%	1819	3.75%	249	3.17%	43	2.60%	44	5.08%	53154	4.31%
21	2692	2.33%	1535	3.16%	159	2.02%	52	3.15%	46	5.31%	23899	1.94%
22	5776	5.00%	2370	4.88%	460	5.85%	67	4.06%	52	6.00%	60608	4.91%
23	8309	7.20%	2246	4.63%	469	5.96%	60	3.63%	52	6.00%	60322	4.89%
24	5216	4.52%	1970	4.06%	462	5.88%	56	3.39%	48	5.54%	44177	3.58%
25	4781	4.14%	2120	4.37%	343	4.36%	53	3.21%	51	5.89%	43652	3.54%
26	4340	3.76%	2363	4.87%	375	4.77%	62	3.75%	61	7.04%	72115	5.85%
27	1740	1.51%	934	1.93%	109	1.39%	33	2.00%	28	3.23%	19928	1.62%
28	1940	1.68%	700	1.44%	174	2.21%	36	2.18%	35	4.04%	18715	1.52%
29	4924	4.27%	2301	4.74%	360	4.58%	75	4.54%	60	6.93%	60359	4.89%
30	4887	4.23%	2338	4.82%	478	6.08%	72	4.36%	58	6.70%	59339	4.81%
31	1450	1.26%	571	1.18%	162	2.06%	21	1.27%	21	2.42%	15785	1.28%



Hourly Statistics for October 2007												
Hour	Hits			Files			Pages			KBytes		
	Avg	Total		Avg	Total		Avg	Total		Avg	Total	
0	34	1079	0.93%	8	270	0.56%	1	42	0.53%	150	4638	0.38%
1	9	308	0.27%	4	147	0.30%	0	28	0.36%	87	2682	0.22%
2	61	1920	1.66%	20	635	1.31%	3	105	1.34%	569	17647	1.43%
3	56	1750	1.52%	40	1265	2.61%	3	108	1.37%	794	24621	2.00%
4	65	2044	1.77%	40	1253	2.58%	4	144	1.83%	774	23993	1.95%
5	106	3286	2.85%	53	1648	3.40%	3	106	1.35%	1045	32406	2.63%
6	137	4256	3.69%	56	1750	3.61%	4	153	1.95%	2070	64184	5.20%
7	176	5464	4.73%	68	2136	4.40%	6	208	2.65%	2503	77600	6.29%
8	164	5102	4.42%	81	2532	5.22%	9	293	3.73%	1820	56423	4.57%
9	363	11262	9.75%	152	4720	9.73%	20	636	8.09%	3539	109699	8.89%
10	244	7569	6.56%	98	3044	6.27%	19	602	7.66%	2635	81690	6.62%
11	219	6812	5.90%	97	3017	6.22%	23	737	9.37%	2486	77068	6.25%
12	253	7851	6.80%	98	3052	6.29%	19	592	7.53%	2294	71113	5.77%
13	196	6104	5.29%	64	2010	4.14%	17	531	6.75%	2485	77044	6.25%
14	187	5813	5.04%	85	2637	5.44%	18	571	7.26%	1992	61739	5.01%
15	169	5257	4.55%	68	2136	4.40%	16	516	6.56%	1444	44764	3.63%
16	209	6496	5.63%	71	2225	4.59%	15	491	6.24%	2002	62077	5.03%
17	155	4815	4.17%	59	1846	3.80%	12	373	4.74%	1745	54097	4.39%
18	132	4096	3.55%	72	2232	4.60%	10	337	4.29%	1760	54545	4.42%

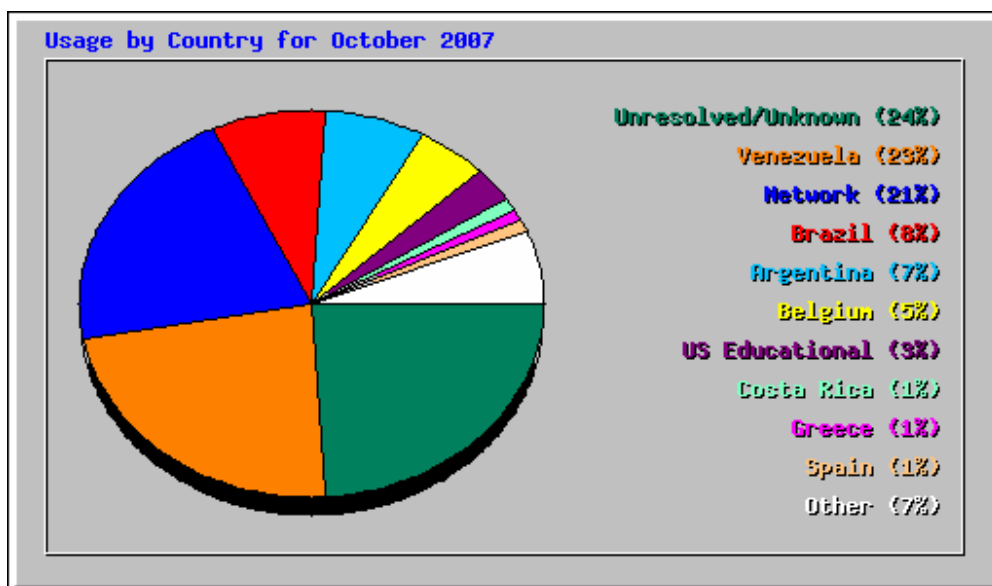
<b>19</b>	<b>128</b>	<b>3994</b>	3.46%	<b>77</b>	<b>2404</b>	4.95%	<b>11</b>	<b>353</b>	4.49%	<b>1523</b>	<b>47201</b>	3.83%
<b>20</b>	<b>187</b>	<b>5802</b>	5.03%	<b>84</b>	<b>2633</b>	5.43%	<b>12</b>	<b>378</b>	4.81%	<b>1857</b>	<b>57568</b>	4.67%
<b>21</b>	<b>227</b>	<b>7062</b>	6.12%	<b>73</b>	<b>2276</b>	4.69%	<b>9</b>	<b>286</b>	3.64%	<b>2297</b>	<b>71222</b>	5.77%
<b>22</b>	<b>160</b>	<b>4970</b>	4.30%	<b>59</b>	<b>1851</b>	3.82%	<b>5</b>	<b>177</b>	2.25%	<b>1257</b>	<b>38964</b>	3.16%
<b>23</b>	<b>75</b>	<b>2338</b>	2.03%	<b>25</b>	<b>799</b>	1.65%	<b>3</b>	<b>96</b>	1.22%	<b>658</b>	<b>20394</b>	1.65%

URLs												
#	Hits		KBytes		URL							
<b>1</b>	<b>2845</b>	2.46%	<b>2222</b>	0.18%	<a href="#">/vicongress/</a>							
<b>2</b>	<b>2678</b>	2.32%	<b>154379</b>	12.52%	<a href="#">/vicongress/img/introdef.swf</a>							
<b>3</b>	<b>2053</b>	1.78%	<b>209144</b>	16.96%	<a href="#">/vicongress/html/</a>							
<b>5</b>	<b>1932</b>	1.67%	<b>32705</b>	2.65%	<a href="#">/vicongress/html/indexlogin.php</a>							
<b>17</b>	<b>1338</b>	1.16%	<b>171</b>	0.01%	<a href="#">/vicongress/vAuthenticate.php</a>							
<b>18</b>	<b>1338</b>	1.16%	<b>171</b>	0.01%	<a href="#">/vicongress/html/indexlogin.php</a>							

Entry Pages					
#	Hits		Visits		URL
<b>1</b>	<b>2845</b>	2.46%	<b>839</b>	57.78%	<a href="#">/vicongress/</a>
<b>2</b>	<b>2053</b>	1.78%	<b>272</b>	18.73%	<a href="#">/vicongress/html/</a>
<b>3</b>	<b>75</b>	0.06%	<b>57</b>	3.93%	<a href="#">/</a>

Sites												
#	Hits		Files		KBytes		Visits		Hostname			
<b>1</b>	<b>13353</b>	11.57%	<b>1811</b>	3.73%	<b>52964</b>	4.29%	<b>30</b>	1.82%	mtpg.ivic.ve			
<b>2</b>	<b>9833</b>	8.52%	<b>1122</b>	2.31%	<b>42983</b>	3.48%	<b>10</b>	0.61%	201-208-191-196.genericrev.cantv.net			
<b>3</b>	<b>6156</b>	5.33%	<b>1483</b>	3.06%	<b>58121</b>	4.71%	<b>26</b>	1.57%	190.77.122.190			
<b>4</b>	<b>5999</b>	5.20%	<b>722</b>	1.49%	<b>13194</b>	1.07%	<b>55</b>	3.33%	serv			
<b>5</b>	<b>3802</b>	3.29%	<b>573</b>	1.18%	<b>22866</b>	1.85%	<b>39</b>	2.36%	ilusion.ivic.ve			
<b>6</b>	<b>3182</b>	2.76%	<b>1557</b>	3.21%	<b>40378</b>	3.27%	<b>16</b>	0.97%	50.6-246-81.adsl-static.isp.belgacom.be			
<b>7</b>	<b>2864</b>	2.48%	<b>613</b>	1.26%	<b>27565</b>	2.23%	<b>17</b>	1.03%	customer			
<b>8</b>	<b>2182</b>	1.89%	<b>1331</b>	2.74%	<b>49246</b>	3.99%	<b>19</b>	1.15%	trl.ceride.gov.ar			
<b>9</b>	<b>1781</b>	1.54%	<b>1221</b>	2.52%	<b>13073</b>	1.06%	<b>22</b>	1.33%	wkstn240-138.meddent.georgetown.edu			
<b>10</b>	<b>1628</b>	1.41%	<b>286</b>	0.59%	<b>17692</b>	1.43%	<b>9</b>	0.54%	190.77.66.98			

11	1514	1.31%	226	0.47%	20028	1.62%	7	0.42%	proxy.ucr.ac.cr
12	1296	1.12%	950	1.96%	14512	1.18%	15	0.91%	samuel.ivic.ve
13	1260	1.09%	184	0.38%	12238	0.99%	12	0.73%	mail.anlis.gov.ar
14	1010	0.87%	272	0.56%	7512	0.61%	9	0.54%	hongos3.ivic.ve
15	959	0.83%	315	0.65%	12525	1.02%	7	0.42%	kulnet-nat-2.kulnet.kuleuven.be
16	935	0.81%	275	0.57%	6698	0.54%	8	0.48%	153.47.uthscsa.edu
17	895	0.78%	126	0.26%	5125	0.42%	14	0.85%	200-71-186-109.genericrev.telcel.net.ve
18	787	0.68%	96	0.20%	8253	0.67%	15	0.91%	200-71-186-108.genericrev.telcel.net.ve
19	774	0.67%	248	0.51%	8080	0.66%	7	0.42%	227.red-80-33-150.staticip.rima-tde.net
20	710	0.61%	472	0.97%	19647	1.59%	5	0.30%	190.79.158.111
21	675	0.58%	169	0.35%	3102	0.25%	4	0.24%	190-39-159-46.dyn.dsl.cantv.net
22	649	0.56%	479	0.99%	13659	1.11%	7	0.42%	pool-151-200-55-30.washdc.east.verizon.net
23	640	0.55%	238	0.49%	7741	0.63%	1	0.06%	200-127-250-178.cab.prima.net.ar
24	622	0.54%	114	0.23%	4700	0.38%	17	1.03%	200-71-186-110.genericrev.telcel.net.ve
25	616	0.53%	237	0.49%	9693	0.79%	2	0.12%	190.79.158.144
26	596	0.52%	96	0.20%	2070	0.17%	9	0.54%	200-71-188-209.genericrev.telcel.net.ve
27	584	0.51%	502	1.03%	14514	1.18%	9	0.54%	host-200-62-152-122.telmex.com.pe
28	538	0.47%	200	0.41%	14959	1.21%	2	0.12%	200.8.111.10
29	535	0.46%	468	0.96%	9419	0.76%	6	0.36%	201-210-225-219.genericrev.cantv.net
30	523	0.45%	157	0.32%	8891	0.72%	2	0.12%	gaminides.ivic.ve



Top 30 of 49 Total Countries

#	Hits		Files		KBytes		Country
1	27694	23.99%	11274	23.24%	308881	25.04%	Unresolved/Unknown
2	26077	22.59%	5462	11.26%	154362	12.52%	Venezuela
3	24327	21.07%	9738	20.07%	214984	17.43%	Network
4	9026	7.82%	5935	12.23%	134292	10.89%	Brazil
5	8153	7.06%	4042	8.33%	126969	10.29%	Argentina
6	6127	5.31%	3262	6.72%	88143	7.15%	Belgium
7	3558	3.08%	2114	4.36%	38491	3.12%	US Educational
8	1515	1.31%	227	0.47%	20030	1.62%	Costa Rica
9	1205	1.04%	916	1.89%	14433	1.17%	Greece
10	1174	1.02%	897	1.85%	20741	1.68%	Spain
11	1072	0.93%	679	1.40%	10865	0.88%	United Kingdom
12	980	0.85%	726	1.50%	14095	1.14%	Mexico
13	819	0.71%	581	1.20%	13759	1.12%	US Commercial
14	584	0.51%	502	1.03%	14514	1.18%	Peru
15	447	0.39%	344	0.71%	17506	1.42%	Colombia
16	346	0.30%	256	0.53%	7500	0.61%	US Government
17	305	0.26%	200	0.41%	3079	0.25%	Chile
18	221	0.19%	208	0.43%	4518	0.37%	Switzerland
19	219	0.19%	213	0.44%	4030	0.33%	France
20	160	0.14%	156	0.32%	3626	0.29%	Italy
21	152	0.13%	131	0.27%	2776	0.23%	Cuba
22	124	0.11%	118	0.24%	1841	0.15%	Japan
23	120	0.10%	111	0.23%	1387	0.11%	Australia
24	118	0.10%	115	0.24%	2041	0.17%	Germany
25	106	0.09%	93	0.19%	737	0.06%	Malta
26	99	0.09%	97	0.20%	648	0.05%	Iran
27	99	0.09%	90	0.19%	1080	0.09%	Uruguay
28	94	0.08%	82	0.17%	1027	0.08%	Cyprus
29	80	0.07%	58	0.12%	549	0.04%	Singapore
30	78	0.07%	63	0.13%	1211	0.10%	Sweden