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Microbial BioPiracy: An Initial Analysis of Microbial Genetic Resources Originating in the South and Held in the North

Synopsis: There is slow but growing recognition worldwide that agricultural and medicinal plant species - nurtured, selected, and bred over millennia by farmers and healers from the South - have yielded, and continue to yield, enormous benefits to industry in the North. A systematic analysis, however, has never been done on the value of microbial genetic resources (such as bacteria, fungi, and viruses) to the North.

With the advent of new biotechnologies and the emergence of new international agreements like the Convention on Biological Diversity and GATT TRIPS (the Trade Related Intellectual Property Agreement of the new GATT deal), microbial genetic resources take on a growing importance in North/South negotiations. In this paper, RAFI draws attention to this little-known fact.

Using data from the American Type Culture Collection (ATCC, the largest bank of microbial genetic resources in the world) RAFI provides a preliminary North/South analysis of microbial genetic resources. RAFI presents data by country, on microbial material taken from the South, housed, and in some cases patented by industry in the North - usually without the knowledge of Southern governments or peoples.

The Rural Advancement Foundation International (RAFI) is an international non-governmental organization which conducts research on agricultural biodiversity, biotechnology, and intellectual property. RAFI Occasional Papers are published irregularly, to disseminate RAFI research and work-in-progress, and they are available from all RAFI offices. We encourage readers to copy and distribute our material, and request only that RAFI be credited when RAFI publications are used.

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Preliminary List for Selected Countries

RAFI has compiled the following tables from the *Catalogue Folio Infobase* of the American Type

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Culture Collection (ATCC) in Rockville, Maryland, USA. The biomaterials described in the attached lists are all held in the ATCC, which is an official repository for living material under patent claim under the terms of the Budapest Treaty. Not all of the material listed is under patent claim.

It should be noted that the ATCC is the largest of 26 facilities in 14 countries that are registered with the Budapest Treaty, 23 of the 26 collections are in the North.

Budapest Treaty Repositories for Microbiological Materials

State	Facilities
North:	
- United Kingdom	7
- Russian Federation	3
- United States	2
- Japan	1
- Germany	1
- France	1
- Netherlands	1
- Belgium	1
- Spain	1
- Bulgaria	1
- Czech Republic	1
- Slovakia	1
- Hungary	1
- Australia	1
South	3
- Korea (Republic of)	
Total	26

RAFI has found the ATCC Info-base to be only roughly indicative of the material held from countries in the South. Sometimes regional, provincial, or colonial names are given rather than proper country names, and much of the material is not identified by country at all. The current status of patent claims is often not given, or is inaccurate.

It is clear, however, that corporate interpretations of the Biodiversity Convention mean that all of the material on the attached lists is the legal property of the depositor and not of the donor country. In fact, the donor country, according to the Convention, is obliged to respect the rights of the depositor. Under the GATT TRIPS Agreement, all signatory states are obliged to adopt patent legislation covering micro-organisms.

RAFI will be updating these tables periodically, and adding new countries to the list. On request, RAFI will produce a similar table from the ATCC data for any country in Africa, Asia, or Latin America.

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Brazil

***Commercially-useful Biomaterials from Brazil deposited in the USA
and now excluded from the Biodiversity Convention***

This material was all collected from the donor country prior to the Convention coming into force. Therefore, this material is the property of the depositor and not of the donor country. If intellectual property claims are made against any of this material, royalties will be paid solely to the depositor.

ATCC #	Depositor	Material	Purpose	US Pat.#
49037	J. Dobereiner	Sugarcane roots	N/A	
49038	J. Dobereiner	Sugarcane	N/A	
49039	J. Dobereiner	Sugarcane	N/A	
31351	Dow	Soil	Production of glucose isomerase	4,308,349
31352	Dow	Soil	Production of glucose isomerase	4,308,349
31353	Dow	Soil	Production of glucose isomerase	4,308,349
31354	Dow	Soil	Production of glucose isomerase	4,308,349
29145	J. Dobereinerl	Digitaria decumbens roots	N/A	
29711	N.R. Krieg	Maize	Produces restriction endonuclease	
29707	N.R. Krieg	Wheat	N/A	
29708	N.R. Krieg	Wheat	N/A	
29709	N.R. Krieg	Maize	N/A	
29731	N.R. Krieg	Wheat	N/A	
35116	NCIB	Root surface soil	N/A	

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35681	L. Seldin	Wheat roots	N/A	
33848	J.C. Burton (General Hospital Corp.)	Nodule on <i>Crotalaria paulina</i>	N/A	4,455,303& 4,478,827
35980	R.M. Smibert	Human oral cavity	N/A	
29094	C. Reis	Hepatic abscesses of swine		
33244	NCPPB	Pineapple	N/A	
49406	ICMP	Guava	N/A	
49250	G.W. Ajello	Human skin lesion	N/A	
49251	G.W. Ajello	Human cerebrospinal fluid	N/A	
49252	G.W. Ajello	Human blood,	N/A	
49253	G.W. Ajello	Human conjunctiva	N/A	
49254	G.W. Ajello	Conjunctiva	N/A	
49255	G.W. Ajello	Human conjunctiva	N/A	
35892	J. Dobreiner	Rice roots	N/A	
35893	J. Dobreiner	Sorghum roots	N/A	
35894	J. Dobreiner	Maize roots	N/A	
11440	E. Darzins	Lizard	N/A	
49244	G.R. Carter	Subcutaneous granuloma in cattle	N/A	
49245	G.R. Carter	Subcutaneous granuloma in cattle	N/A	
49246	G.R. Carter	Subcutaneous granuloma in cattle	N/A	

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49424	H. Schlesner	water from salt pit	N/A	
49425	H. Schlesner	Water from salt pit	N/A	
19864	NCPPB	Coffea arabica	N/A	
15710	Lepetit Labs	Soil	N/A	
27116	J.O. Falcao de Morais	Soil	N/A	
15422	Bristol Labs	Soil	Produces hedamycin	3,334,016
15569	E.R. Squibb	Soil	N/A	
31906	Warner-Lambert/Parke Davis	Soil	Production of CL 1565 antibiotic complex	4,495,286
25640	A. Grein	Soil	N/A	4,247,545, 4309503, 4370474, 4411834, 4421851 & 4942155
15421	Bristol Labs	Soil	Produces streptonigan	3,334,015
25664	J.O. Falcao de Morais	Soil	N/A	
25665	J.O. Falcao de Morais	Soil	N/A	
21393	Lepetit Labs	Soil	Production of selenomycin	3,683,074
43912	W.F. Fett	Soybean		
23053	I. Hertman strain Kimberly	Pasturella pestis	N/A	
CRL-1835 (cell line)	M. de Castro, Instituto Biologico, Rio to J.A. House, USDA	Kidney cells of a normal 3-month-old female pig	useful for propagating numerous swine viruses	
22643	J.L. Bezerra	Wood		
76739	T. Mizuno (Kaken Pharm)	N/A	Produces antitumor hetero-glycans	5,102,794
28350	A.A. Padhye	Hair of spiny rat	N/A	

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28351	A.A. Padhye	Hair of spiny rat	N/A	
28352	Preceptrol	Hair of spiny rat	N/A	
28353	A. A. Padhye	Hair of spiny rat	N/A	
28354	Preceptrol	Hair of spiny rat	N/A	
28355	A.A. Padhye	Hair of spiny rat	N/A	
26040	A.T. Londero	Human infection	N/A	
24147	E.E. Davis (Norden Labs, Inc.)	Fragaria sp.	N/A	4,303,644
11969	A.C. Batista	Aspergillus gracilis var.	N/A	
12413	A.C. Batista	Human nail lesions	N/A	
16864	K.B. Raper and D.I. Fennell	Culture contaminant	N/A	
12073	IMUR	Air contaminant	N/A	
46890	Y.K. Park	fermented cassava	Produces amylogucosidae	
66282	Y.K. Park	Forest soil	Production of invertase	
16910	K.B. Raper and D.I. Fennell	Paracoccidioides loboii	N/A	
12074	A.C. Batista	Human skin lesion	N/A	
10070	NRRL	Human ear	N/A	
10588	CMI	Palm nut	N/A	
62423	J.J. Muchovej	Kiikuya grass	N/A	
64939	J.J. Muchovej	Euphorbia sp.	N/A	
62424	J.J. Muchovej	Paspalum conjugatum	N/A	
34216	L. Marvanova	Damaged kernel of Bertholletia excelsa	N/A	

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18927	M.C. Papendorf	Sandy soil	N/A	
38930	H. Butin	Parana pine	N/A	
15534	A.C. Stolk	Soil	N/A	
66562	C.S. Lacaz	Lesion on human forearm	N/A	
66563	C.S. Lacaz	Human fingernail	N/A	
36816	O.D. Dhingra	Phaseolus vulgaris seeds	N/A	
24111	E.E. Davis (Norden Labs, Inc.)	Brachychiton sp.	N/A	
60990	A.C. Cafe-Filho	Carrot	N/A	
64238	J.C. Dianese	Eucalyptus pellita branch	N/A	
76751	H.J.M. Loffler	Race alfalfa	N/A	
38723	A.M.R. Almeida	Soybean leaf	N/A	
242281	E. Minussi	Citrus sp.	N/A	
62735	J.J. Muchovej	Bean, Phaseolus lunatus	N/A	
22833	C.S. Hodges	Pinus caribaea roots	N/A	
42088	H.A. Bolkan	Potato tuber	N/A	
44649	C.A. Lopes	Potato tuber	N/A	
60587	J.C. Dianese	Soybean root	N/A	
24711	E. Silva	Dead wood of Couratari sp.	N/A	
64840	A.C. Alfenas	Eucalyptus grandis cutting	Highly resistant to benomyl	
62616	N.E. El-Gholl	Eucalyptus viminalis	N/A	

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28227	T. Namekata	Pinus pinaster	Caussal agent of red band needle blight	
12570	A.E. Jenkins (Japanese Govt. and BP Chemical)	Hevea brasiliensis, leaves	Production of elsinan as packaging film material and coating agent	4,202,966 & 4,678,752
13008	A.E. Jenkins (Japanese Govt. and BP Chemical)	Pouteria campechiana	Production of elsinan as packaging film material and coating agent	4,202,966
12069	A.C. Batista	Laboratory contaminant	N/A	
64542	J.J. Muchovej	Carpinter ant fungal mass	N/A	
46428	M.A. de Resende	Human with chromomycosis	N/A	
62425	J.J. Muchovej	Morus sp.	N/A	
38067	H.A. Bolkan	Pineapple fruit	Chemical control	
42089	H.A. Bolkan	Pineapple leaf surface	N/A	
42145	D.J. Hagedorn	Dry beans	Inherited resistance in beans	
36198	G.M. Armstrong	Cotton stalk	N/A	
64074	T. Kommedahl	Baccaris sp.	N/A	
16168	IFO via Inst. Micol. Univ. Recife	N/A	N/A	
44648	F. Reifschneider	Carrot	N/A	
24597	S. Dietrich	Railroad Ties	N/A	
18116	C. Batista	Soil	N/A	
18115	C. Batista	Soil	N/A	
42529	G.J. Samuels	Bark	N/A	
42645	NRRL	Paddy field soil	N/A	

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60516	G. Tharn (Becton, Dickinson, and Co.)	Dead dicot wood	N/A	4,678,752
24712	E. Silva	Wood of Zollernia elicifola	N/A	
60849	D.O. Silva	Compost	Production of beta-glucosidase	
18117	C. Batista	Soil	N/A	
16172	IFO	N/A	N/A	
76476	G.J. Samuels	Theleporaceae	N/A	
22642	J.L. Bezzerra	Wood	N/A	
42410	C.S. Hodges	Terminalia ivorensis	N/A	
42521	G.J. Samuels	Decorticated wood	N/A	
42522	G.J. Samuels	Decorticated wood	N/A	
60335	D.W. Roberts (Lever Brothers Co., Division of Conopco, Inc.)	Spittlebug, Deois flavopicta	N/A	4,500,268
60336	D.W. Roberts (Lever Brothers Co., Division of Conopco, Inc.)	Spittlebug, Mahanarva posticata	N/A	
18393	D. Borelli	Hair of Oryzomys rats	N/A	
22243	L. Ajello	Lesion on head of chicken	N/A	
26041	A.T. Londero	Knee of 16-year-old boy	N/A	
26042	Preceptrol	Dermatophytosis	N/A	
66887	G.J. Samuels	Bark	N/A	
22259	C. Ram	Wood of Xylopia sp.	N/A	
46892	Y.K. Park	Beiju (fermented cassava)	N/A	

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42527	G.J. Samuels	Bark	N/A	
46889	Y.K. Park	Beiju (fermented cassava)	Produces alpha-amylase	
32069	A. Restrepo	Human	N/A	
32070	A. Restrepo	Human	N/A	
66383	C. Lacaz	Dog food	N/A	
66778	A.A. Padhye	Dog chow	N/A	
36038	D. Knosel	Orange	N/A	
64938	J.J. Muchovej	Caesalpinia echinata	N/A	
46169	H.P. Upadhyay	Vanilla planifolia	N/A	
26191	A. Ulken	Mangrove soil	N/A	
56971	B. Reifschneider	Asparagus	N/A	
22328	C.J. Alexopoulos	Field collection	N/A	
46702	G.A. Zentmyer	Cacao leaves	N/A	
46703	G.A. Zentmyer	Cacao pod, Catongo clone	N/A	
46704	G.A. Zentmyer	Cacao pod, Catongo clone	N/A	
46705	G.A. Zentmyer	Moss on cacao trunk	N/A	
46706	G.A. Zentmyer	Cacao pod	N/A	
46708	G.A. Zentmyer	Cacao canker	N/A	
46709	G.A. Zentmyer	Cacao canker	N/A	
46712	G.A. Zentmyer	Cacao pod	N/A	
52140	G.A. Zentmyer	Soil	N/A	

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52226	G.A. Zentmyer	Rubber plant	N/A	
52228	G.A. Zentmyer	Cacao	N/A	
64856	M. Coffey	Cacao	N/A	
58211	G.A. Zentmyer	Cacao	N/A	
64812	M. Coffey	Cacao	N/A	
64857	M. Coffey	Cacao	N/A	
64858	M. Coffey	Cacao	N/A	
64859	M. Coffey	Cacao	N/A	
64853	M. Coffey	Citrus sp.	N/A	
48842	G.A. Zentmyer	Theobroma cacao canker	N/A	
52160	G.A. Zentmyer	Cacao	N/A	
52240	G.A. Zentmyer	Rubber tree	N/A	
58212	G.A. Zentmyer	Cacao	N/A	
32853	CBS	Soil	N/A	
24999	CBS	Soil	N/A	
42528	G.J. Samuels	Well-rotted decorticated wood	N/A	
22223	G.F. Orr	Human ear	N/A	
24598	S. Dietrich	Tree trunk	N/A	
24619	S. Dietrich	Fresh water	N/A	
52659	W.R. Coelho	Beet	N/A	
52660	W.R. Coelho	Bean leaves	N/A	

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52661	W.R. Coelho	Potato tuber	N/A	
56049	W.R. Coelho	Rubber plant	N/A	
46891	Y.K. Park	Beiju (fermented cassava)	N/A	
62614	C. Paula	Piglet with pityriasis rosea	N/A	
44206	G.M. Pastore	Soil	Production of beta-galactosidase	
32283	R. Vanbreuseghem	Human	N/A	
32284	R. Vanbreuseghem	Ulcerous leg lesion	N/A	
32285	R. Vanbreuseghem	Lymphangitis of forearm	N/A	
32286	R. Vanbreuseghem	Pustule on hand	N/A	
76481	G.J. Samuels	Sand dune	N/A	
42525	G.J. Samuels	Bark of unidentified dead tree	N/A	
42526	G.J. Samuels	Cortex of unidentified dead tree	N/A	
10511	NRRL	Soil	N/A	
26267	J.L. Crane	Soil	N/A	
22634	J.L. Bezerra	Soil	N/A	
42524	G.J. Samuels	Decorticated wood	N/A	
22641	J.L. Bezerra	Wood	N/A	
76590	J.D. Rogers			
30255	S.H. Hunter	Zelus leucogrammus	N/A	
30969	I. Roitman	Zelus leucogrammus	N/A	

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30818	I. Roitman	Coscomoclopius sp.	N/A	
30817	I. Roitman	Zelus leucogrammus	N/A	
30708	F.G. Wallace	Muscina stabulans	N/A	
30252	S.H. Hunter	Zelus leucogrammus	N/A	
50135	WRAIR/WHO Leishmania Reference Center	human	N/A	
50126	WRAIR/WHO Leishmania Reference Center	human	N/A	
50133	WRAIR/WHO Leishmania Reference Center	child	N/A	
30035	H.G. du Buy/ E.J. Tobie	guinea pig	N/A	
50120	WRAIR/WHO Leishmania Reference Center	guinea pig	N/A	
50131	WRAIR/WHO Leishmania Reference Center	human	N/A	
50159	WRAIR/WHO Leishmania Reference Center	phlebotomine fly	N/A	
30970	I. Roitman	Zelarus martinski	N/A	
30971	I. Roitman	Zelus leucogrammus	N/A	
50166	M. Attias	Euphorbia hyssopifolia latex	N/A	
30130	Section on Primate Malaria, HIH strain Howler	Alouatta fusca	N/A	
30013	L.S. Diamond strain Culbertson	human	N/A	
30029	E.J. Tobie strain Wellcome	Instituto	N/A	
VR-477	R.E. Shope	Pooled tissue of asymptomatic Neacomys guianae	Effect: Death	
VR-465	Yale Arbovirus Resaerch	Sentinel Cebus	Effect: Death	

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	Unit	apella		
VR-474	Yale Arbovirus Resaerch Unit	Anopheles cruzii	Effect: Death	
VR-396	R.E. Shope	Mixed mosquito pool, adult female	First reported to be a strain of Cache Valley (above ref.), it is now considered to be a different virus	
VR-397	Yale Arbovirus Resaerch Unit	Sabethini mosquitoes	HA produced	
VR-306	R.E. Shope	Serum from Cebus apella, female, adult	HA produced	
VR-307	R.E. Shope	Serum from Cebus apella, female, adult	HA produced. Closely related to Madrid virus from Panama	
VR-311	J. Casals	Blood from adult sentinel mouse	Bunyavirus, Group C	
VR-308	J. Casals	Serum from sentinel Cebus apella	Bunyavirus, Group C	
VR-309	J. Casals	Serum from sentinel Cebus apella	Bunyavirus, Group C	
VR-387	R.E. Shope	Brain of sentinel baby mouse	Bunyavirus, Group C	
VR-310	J. Casals	Serum from sentinel Cebus apella	Bunyavirus, Group C	
VR-436	Yale Arbovirus Resaerch Unit	Brain and liver pool of sentinel Swiss mouse	Bunyavirus, Capim Group	
VR-386	R.E. Shope	Opossum, Caluromys philander	Bunyavirus, Capim Group	
VR-570	Yale Arbovirus Resaerch Unit	Whole blood from Swiss mice, female	Bunyavirus, Capim Group	
VR-421	Yale Arbovirus Resaerch Unit	Sentinel mice	Bunyavirus, Guama Group	
VR-407	Yale Arbovirus Resaerch Unit	Serum of sentinel Cebus apella	Bunyavirus, Guama Group	

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VR-455	Yale Arbovirus Resaerch Unit	Cebus apella, serum from sentinel animal	Bunyavirus, Guama Group	
VR-420	Yale Arbovirus Resaerch Unit	Culex (Melanoconion) sp.	Bunyavirus, Guama Group	
VR-429	Yale Arbovirus Resaerch Unit	Blood of three-toed sloth	Bunyavirus, Simbu group	
VR-424	Yale Arbovirus Resaerch Unit	Choloepus brasiliensis (Sloth) heart, liver, spleen, and kidney pool	Bunyaviridae, Phlebovirus	
VR-425	Yale Arbovirus Resaerch Unit	Proechimys guyannensis oris., asymptomatic serum	Bunyaviridae, Phlebovirus	
VR-408	Yale Arbovirus Resaerch Unit	Serum from febrile adult male	Bunyaviridae, Phlebovirus	
VR-427	Yale Arbovirus Resaerch Unit	Pool of tissues from unidentified asymptomatic rodent	Bunyaviridae, Phlebovirus	
VR-410	R.E. Shope	Brain of sentinel sM	Bunyaviridae, Phlebovirus	
VR-458	Yale Arbovirus Resaerch Unit	Serum from an adult Oryzomys sp. (rat)	Bunyaviridae, Phlebovirus	
VR-73	J. Casals	Aedes and Psorophora mosquitoes	Flavivirus	
VR-388	Yale Arbovirus Resaerch Unit	Oryzomys sp.	Orbivirus	
VR-995	H. Lipton	Feral mouse	Picornavirus, Animal	
VR-464	Yale Arbovirus Resaerch Unit	Brain of 3-day sentinel mouse	Poxvirus	
VR-473	Yale Arbovirus Resaerch Unit	Brain of sentinel suckling white mice	Poxvirus	
VR-115	F. Fenner	Rabbit myxomatosis	Poxvirus	
VR-116	L. Thomas (National Research Development	Rabbit	Poxvirus	

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	Corporation)			
VR-433	R.E. Shope	Pooled heart and liver from asymptomatic male and female Ameiva ameiva ameiva (lizard)	Rhabdovirus	
VR-450	Yale Arbovirus Resaerch Unit	Haemagogus sp.	Rhabdovirus	
VR-454	R.E. Shope	Pooled heart and liver from asymptomatic male and female Ameiva ameiva ameiva (lizard)	Rhabdovirus	
VR-581	R.E. Shope	Spleen and liver of adult male Metachirops opossum	Rhabdovirus	
VR-368	Yale Arbovirus Resaerch Unit	Whole triturated mosquito, Culex sp.	Togavirus, Alphavirus	
VR-580	R.E. Shope	Serum from adult Cebus apella	Togavirus, Alphavirus	
VR-372	Yale Arbovirus Resaerch Unit	Anopheles nimbus	Togavirus, Alphavirus	
VR-374	Yale Arbovirus Resaerch Unit	Psorophora ferox	Togavirus, Alphavirus	
VR-466	Yale Arbovirus Resaerch Unit	Whole triturated mosquitoes Anopheles (s) nimbus	Unclassified	
PV-353	R.W. Fulton	Tobacco Streak Harvirus		
76712	E. Slavikova	Anuran liver	N/A	
32301	CBS	Soil	N/A	
13169	NRRL	Pollen	N/A	
24110	E.E. Davis (Norden Labs, Inc.)	Tecoma cristotrichia	N/A	

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Source: American Type Culture Collection, Folio Infobases, November, 1992.

The ATCC records 258 accessions from Brazil. U.S. Patents 4,455,303 & 4,478,827 are from a nodule on *Crotalaria paulina* found in Brazilian soil and "invented" by the General Hospital Corporation in the USA. Bristol-Myers is the genius behind patent 3,334,016 (otherwise Brazilian soil bacteria) now useful in the production of hedamycin, while Warner-Lambert has taken bacteria from another soil sample to produce an antibiotic, and U.S. Patent 4,495,286. Lepetit Labs has used a soil accession in the production of selenomycin - patent 3,683,074. From Japan, Kaken Pharmaceuticals has found Brazilian microbials useful in the production of antitumor agents (U.S. Patent 5,102,794). A.E. Jenkins has turned leaves from a Brazilian rubber tree into packaging film and a coating agent - U.S. Patents 4,202,966 & 4,678,752. It appears that Mr. Jenkins has variously worked for the Japanese Government and British Petroleum.

Only a small percentage of the Brazilian material at the ATCC is identified as under patent claim. Accession VR-454, for example, was among many gathered up by an R.E. Shope and is described as the "pooled heart and liver from asymptomatic male and female *Ameiva ameiva ameiva* (lizards)". In fact the ATCC descriptors read like the witch's brew in a Shakespearean tragedy: "blood of three-toed sloth", "pustule on a human hand", "ulcerous leg lesion", some things from human ears, fingernails and skin, and ATCC 26041 - from the "knee of a 16-year-old [Brazilian] boy". The collection includes a "Carpenter ant fungal mass", "hair of spiny rat", railroad ties, and bits and pieces of most of the plants and animals we associate with an Amazon rainforest, perhaps including some of the people. The WRAIR/WHO Leishmania Reference Center has deposited a lot of material simply identified as coming from a "human".

Chile

***Commercially-useful Biomaterials from Chile deposited in the USA
and now excluded from the Biodiversity Convention.***

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ATCC #	Depositer	Material	Purpose	US Pat.#
49036	B. Gonzalez	Pulp mill effluent		
64279	C.A. Shearer	Intertidal wood		
64280	C.A. Shearer	Intertidal twig		
64281	C.A. Shearer	Intertidal wood		
24276	CBS	Bast of Araucaria araucana		
52341	Z.K. Punja	Turf		
56505	B.A. Latorre	Oregon Spur		
56506	B.A. Latorre	Oregon Spur		
36344	E. Piontelli	Horse hairs		
18396	H. Butin	Decorticated logs of Araucaria araucana		
64282	C.A. Shearer	Intertidal wood		
64283	C.A. Shearer	Intertidal wood		
36338	E. Piontelli	Soil		
36339	E. Piontelli	Soil		
36340	E. Piontelli	Soil		
36341	E. Piontelli	Soil		

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36342	E. Piontelli	Horse hairs		
36343	E. Piontelli	Soil		
64421	CBS	Keratinous substrate in semi-desert area		
38690	H. Peredo	Pinus radiata		
46271	A.Y. Rossman	Atriplex semibaccata seeds		
64284	C.A. Shearer	Intertidal wood		
64286	C.A. Shearer	Intertidal wood		
64287	C.A. Shearer	Submerged wood		
66968	L. Sigler	Soil		
76730	C.A. Shearer	Submerged twig		
64288	C.A. Shearer	Intertidal wood		
64289	C.A. Shearer	Submerged wood		
52554	T.J. Michailides	Nectarine		
36041	D. Knosel	Lemon		
64255	CCF	Sandy soil		
60198	IJFM	Sandy soil		
66339	C.A. Shearer	Submerged wood		
32118	CBS	Soil		
50001	S.L. Allen	stock		
30662	T.M. Sonneborn	ROADSIDE POND		
50018	S.L. Allen	stock		
30679	T.M. Sonneborn	roadside pool		

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30208	T.I. Mercado	Trypanosoma cruzi		4,474,772
30266	R.G. Yaeger	Triatoma infestans		
30269	R.G. Yaeger	Triatoma infestans		
58915	C. Ramirez	Decayed Nothofagus obliqua wood		
58887	C. Ramirez	Decayed Laurelia sempervirens trunk		
58889	C. Ramirez	Fallen Nothofagus dombeyii		
58888	C. Ramirez	Fallen Eucryphia cordifolia		
58890	C. Ramirez	Decayed Eucryphia cordifolia trunk		
58891	C. Ramirez	Rotting Nothofagus dombeyii trunk		
22076	CBS	Rotting wood		
58904	C. Ramirez	Decayed, fallen Eucryphia cordifolia		
58892	C. Ramirez	Decayed, fallen Drymis winterii		
58893	C. Ramirez	Decayed, fallen Laurelia philippiana		
58894	C. Ramirez	Decayed, fallen Nothofagus obliqua		
58895	C. Ramirez	Decayed, fallen Nothofagus dombeyii		

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58896	C. Ramirez	Fallen, decayed Nothofagus dombeyii		
58897	C. Ramirez	Decayed Nothofagus dombeyii		
58905	C. Ramirez	Decayed, fallen Laurelia sempervirens		
58898	C. Ramirez	Decayed, fallen Nothofagus dombeyii		
58899	C. Ramirez	Decayed, fallen Laurelia sempervirens		
22077	CBS	Rotting wood		
58971	C. Ramirez	Decayed, fallen Laurelia sempervirens		
58900	C. Ramirez	Scaptomyza multisporaintestinal tract		
22078	CBS	Araucaria araucana		
58914	C. Ramirez	Decayed Laureliasempivirens wood		
58901	C. Ramirez	Decayed, fallen Eucryphia cordifolia		
58902	C. Ramirez	Rotten Nothofagus obliqua log		
58903	C. Ramirez	Decayed, fallen Eucryphia cordifolia		
30686	T.M. Sonneborn	stock		

Source: American Type Culture Collection, Folio Infobases, November, 1992.

Colombia

Commercially-useful Biomaterials from Colombia deposited in the USA and now excluded from the Biodiversity Convention

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ATCC #	Depositor	Material	Purpose	US Pat.#
33018	M.J. Torres-Anjel	Powdered milk-base infant formulae	Produces enterotoxins	
33019	M.J. Torres-Anjel	Powdered milk-base infant formulae	Produces enterotoxins	
33594	S. Schaeffler	Staphylococcus aureus subsp. aureus		
39151	Bristol-Myers Co.	Soil	Production of albacarcins	
19312	NCPFB	Axonoperis scoparius		
54069	S.C. Geddie	Arabidopsis thaliana		
22166	S.C. Jong	Soil		
24821	W.C. Snyder	Cocoa		
24822	W.C. Snyder	Cocoa		
28570	A. Restrepo	Human nail lesion		
60763	A. Sivanesan	Oryza sativa leaves		
16509	E.E. Davis	Plant debris from soil		
22210	S.C. Jong & E.E. Davis	Soil		
22208	S.C. Jong & E.E. Davis	Soil		
66902	G.J. Samuels	Immersed bark		

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32069	A. Restrepo	Human, Brazil. Paracoccidioidin sensitivity in Colombia		
32070	A. Restrepo	Human, Brazil. Paracoccidioidin sensitivity in Colombia		
32071	A. Restrepo	Human		
32072	A. Restrepo	Human		
32073	A. Restrepo	Human		
32074	A. Restrepo	Human		
32075	A. Restrepo	Human		
60835	A. Restrepo	Sputum		
60855	A. Restrepo	Sputum		
60867	A. Restrepo	Skin lesion exudate		
62736	A. Restrepo	Sputum		
76533	E. Brummer	Oral mucosa of a patient with paracoccidioido-mycosis		
46064	M.A. Pastor-Corrales	Phaseolus coccineus		
46065	M.A. Pastor-Corrales	Phaseolus vulgaris		
32112	R.D. Goos	Soil		
76027	W.M. Loerakker	Tomato stem, Lycopersicon esculentum, Rionegro, Antioquia		
22167	S.C. Jong	Soil		
46617	G.A. Zentmyer	Cacao black pod		
26679	A. Restrepo	Ulceration of palate mucosa, 4-year-old girl		
44291	W. Rademacher	Cassava, Manihot esculenta	Produces gibberellin A4	
44292	W. Rademacher	Cassava, Manihot	Produces gibberellin	

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		esculenta	A4	
44647	J. Lenne	Zornia latifolia, scab		
60850	R. Baker	Soil	Biological control and increased crop growth	
42813	F.J. Ryan	Neurospora crassa		
42814	F.J. Ryan	Neurospora crassa		
42815	F.J. Ryan	Neurospora crassa		
42816	F.J. Ryan	Neurospora crassa		
42817	F.J. Ryan	Neurospora crassa		
42818	F.J. Ryan	Neurospora crassa		
42819	F.J. Ryan	Neurospora crassa		
42820	F.J. Ryan	Neurospora crassa		
42821	F.J. Ryan	Neurospora crassa		
42859	F.J. Ryan	Neurospora crassa		
42860	F.J. Ryan	Neurospora crassa		
42861	F.J. Ryan	Neurospora crassa		
42862	F.J. Ryan	Neurospora crassa		
42863	F.J. Ryan	Neurospora crassa		
42864	F.J. Ryan	Neurospora crassa		
42865	F.J. Ryan	Neurospora crassa		
42866	F.J. Ryan	Neurospora crassa		
42867	F.J. Ryan	Neurospora crassa		
42875	F.J. Ryan	Neurospora crassa		

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42876	F.J. Ryan	Neurospora crassa		
44038	F.J. Ryan	Neurospora crassa		
44039	F.J. Ryan	Neurospora crassa		
44040	F.J. Ryan	Neurospora crassa		
44042	F.J. Ryan	Neurospora crassa		
30489	R.G. Yaeger	Choloepus sp.		
30120	NIH	Saimiri sciureus		
30934	J. Griffin			
VR-708	R.E. Shope	Blood of the rodent Oryzomys albigularis, in the Pichinde Valley		
VR-327	E.L. Buescher	Anopheles (Kerteszia) boliviensis		
VR-1200	NIAID	Immune ascitic fluid		
VR-1200	NIAID	Control ascitic fluid		
VR-86	E.L. Buescher	Suspension of Anopheles(Kerteszia) boliviensis mosquitoes caught in Colombia, 1940		
VR-91	J. Casals	Wyeomyia (Dendromyia) melanocephala mosquitoes		
VR-394	Yale Arbovirus Research Unit	Serum of asymptomatic adult female		
VR-438	R.E. Shope	Cathartes aura, spleen, asymptomatic, Cali		
PV-292	G. Martinez-Lopez	Zea mays		
PV-360	R.O. Hampton	Chenopodium quinoa		

Source: American Type Culture Collection, Folio Infobases, November, 1992.

Costa Rica

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ATCC #	Depositor	Material	Purpose	US Pat.#
25529	J.E. Peterson	Soil	N/A	
23140	R.A. Lewin	Beach mud	N/A	
23178	R.A. Lewin LIM-21	Beach mud	N/A	
23086	R.A. Lewin	Cathedral pool	N/A	
23079	R.A. Lewin	Lilly pond	N/A	
23080	R.A. Lewin	Rivulet	N/A	
23087	R.A. Lewin	Hot spring	N/A	
23088	R.A. Lewin	Hot spring	N/A	
25569	J.E. Peterson	Soil	N/A	
33192	NCPPB	Physalis angulata	N/A	
23175	R.A. Lewin	Beach mud	N/A	
33107	B.C. Raju	Grape plants	N/A	
45106	R.W. Hammond	maize rayado fino virus genome		
64672	L. Mendoza (Ortho Diagnostic Systems Inc.)	Keratitis in dog	N/A	5215882
16850	K.B. Raper and D.I. Fennell	Soil	N/A	
16858	K.B. Raper and D.I. Fennell	Soil	N/A	

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16852	K.B. Raper and D.I. Fennell	Soil	N/A	
16796	K.B. Raper and D.I. Fennell	Soil	N/A	
16857	K.B. Raper and D.I. Fennell	Soil	N/A	
16833	K.B. Raper and D.I. Fennell	Soil	N/A	
16849	K.B. Raper and D.I. Fennell	Soil	N/A	
16876	K.B. Raper and D.I. Fennell	Soil	N/A	
16834	K.B. Raper and D.I. Fennell	Soil	N/A	
16880	Preceptrol	Soil	N/A	
16842	K.B. Raper and D.I. Fennell	Soil	N/A	
16800	K.B. Raper and D.I. Fennell	Soil	N/A	
16851	K.B. Raper and D.I. Fennell	Soil	N/A	
16867	K.B. Raper and D.I. Fennell	Soil	N/A	
15233	B. Wiley	Painted wood	Production of fructosyltransferase	4335207
48061	G.E. Harman (Cornell Research Foundation Inc.)	Snapdragon seeds	N/A	4996157 & 5165928 & 5,173,419
16012	R.D. Goos, United Fruit Co.	Banana leaf	N/A	
60925	C. Vincente	Nasal lesion in horse	N/A	
28794	J.W. Paden	Rotting wood	N/A	
14595	R.D. Goos	Banana rhizosphere soil	N/A	
18182	K.B. Raper	Forest soil	N/A	
18183	K.B. Raper	Forest soil	N/A	

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66536	O.R. Collins	Didymium iridis	N/A	
66543	O.R. Collins	Didymium iridis	N/A	
66547	O.R. Collins	Didymium iridis	N/A	
66548	O.R. Collins	Didymium iridis	N/A	
66551	O.R. Collins	Didymium iridis	N/A	
66569	O.R. Collins	Didymium iridis	N/A	
36896	F.M. Latterell	Diplodia macrospora	N/A	
16065	W. Gerlach	Theobroma cacao	N/A	
24136	Schramm	Theobroma sp.	N/A	
44215	D.M. Norris	Ambrosia beetle, Xyleborus ferrugineus	N/A	
16395	C.J. Alexopoulos	Gelasinospora autosteira	N/A	
16396	C.J. Alexopoulos	Gelasinospora autosteira	N/A	
42952	G.A. Enriquez	Cacao, Theobroma cacao pod	N/A	
64239	V.H. Porras	Cocoa fruits	N/A	
12578	CBS	Coffea sp.	N/A	
34884	J.G. Hancock	Coffee	N/A	
76114	UAMH	Coffee plant	N/A	
16054	F.L. Wellman	Coffee	N/A	
28795	J.W. Paden	Rotting wood	N/A	
62603	J.W. Paden	Decaying wood	N/A	
46713	G.A. Zentmyer	Capsicum sp. fruit	N/A	

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64807	M. Coffey	Spondias purpurea	N/A	
26200	G.A. Zentmyer	Theobroma cacao pods	N/A	
46611	G.A. Zentmyer	Cacao trunk canker	N/A	
46612	G.A. Zentmyer	Cacao pod	N/A	
46613	G.A. Zentmyer	Cacao pod	N/A	
46614	G.A. Zentmyer	Cacao pod, Catongo clone	N/A	
46624	G.A. Zentmyer	Cacao leaf	N/A	
46632	G.A. Zentmyer	Cacao pod	N/A	
46633	G.A. Zentmyer	Cacao black pod	N/A	
46639	G.A. Zentmyer	Cacao cherelle	N/A	
46737	G.A. Zentmyer	Cacao	N/A	
48782	G.A. Zentmyer	Theobroma cacao canker	N/A	
48783	G.A. Zentmyer	Theobroma cacao canker	N/A	
48834	G.A. Zentmyer	Theobroma cacao pod	N/A	
48839	G.A. Zentmyer	Theobroma cacao pod	N/A	
52141	G.A. Zentmyer	Piper nigrum	N/A	
52161	G.A. Zentmyer	Mangifera sp.	N/A	
52162	G.A. Zentmyer	Papaya	N/A	
52163	G.A. Zentmyer	Cacao pod	N/A	
52164	G.A. Zentmyer	Cacao leaf	N/A	
52165	G.A. Zentmyer	Cacao branch	N/A	

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52166	G.A. Zentmyer	Cacao pod	N/A	
58218	G.A. Zentmyer	Cacao	N/A	
58219	G.A. Zentmyer	Cacao	N/A	
64496	V.H. Porras	Petunia sp.	N/A	
58637	A.A. Padhye	Horse	N/A	
58638	A.A. Padhye	Horse	N/A	
58639	A.A. Padhye	Horse	N/A	
58640	A.A. Padhye	Horse	N/A	
58641	A.A. Padhye	Horse	N/A	
58642	A.A. Padhye	Horse	N/A	
58643	A.A. Padhye	Horse	N/A	
58644	A.A. Padhye	Horse	N/A	
64883	L. Mendoza (Ortho Diagnostic Systems Inc.)	Leg of female horse	N/A	
16056	F.L. Wellman	Coffee	N/A	
14043	R.D. Goos	Soil	N/A	
14044	R.D. Goos	Soil	N/A	
66575	O.R. Collins	Banana peels	N/A	
64790	E.B. Dorworth	Hardwood	N/A	
9358	N.F. Conant			

Source: American Type Culture Collection, Folio Infobases, November, 1992.

Americas

Panama

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ATCC #	Depositer	Material	Purpose	US Pat.#
31314	K.S. Kang	Soil		claim
31488	K.S. Kang	Soil	Production of polysaccharide S-53	4,291,156
39243	J.A. Bush	Soil	Production of rebeccamycin	4,567,143
12719	Chas. Pfizer Co.	Peltaster sp.	Production of steroids	2,882,205
11816	Chas. Pfizer Co.	Textile sample	Production of oxygenated steroids	3,784,447
11833	Chas. Pfizer Co.	Cotton duck		2,936,264
31314	K.S. Kang	Soil		claim
31488	K.S. Kang	Soil	Production of polysaccharide S-53	4,291,156
39243	J.A. Bush	Soil	Production of rebeccamycin	4,567,143
10598	M.D. Lairmore	26-year-old female Guaymi Indian patient		claim
12719	Chas. Pfizer Co.	Peltaster sp.	Production of steroids	2,882,205
11816	Chas. Pfizer Co.	Textile sample	Production of oxygenated steroids	3,784,447
11833	Chas. Pfizer Co.	Cotton duck		2,936,264
43288	K. Sulzer and A.F. Kaufmann	Opossum kidney, Didelphis marsupialis		
43286	K. Sulzer and A.F. Kaufmann	Spiney rat kidney		

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9712	O. Felsenfeld	Cystitis		
7251	AMC	Salmonella typhi		
25931	Preceptrol	Human feces		
CRL-1587	NIAID	Kidney, African green monkey		
CRL-10598	M.D. Lairmore	26-year-old female Guaymi Indian patient		claim
26505	R.D. Goos	Palm nut		
66442	M. Christensen	Soil		
16835	K.B. Raper and D.I. Fennell	Soil		
16873	K.B. Raper and D.I. Fennell	Soil		
16797	K.B. Raper and D.I. Fennell	Soil	Produces: tetronic acid derivatives with antibacterial and antitumor activity	
24485	B.J. Wiley	Soil		
16801	K.B. Raper and D.I. Fennell	Soil		
14059	Preceptrol	Soil	Produces beta-carotene	
14271	NRRL	Soil	Production of beta-carotenes	2,865,814 and 2,890,989
32110	R.D. Goos	Fruit of Gustavia superba		
11202	L.M. Ames	Deteriorating material		
12331	QM	Textile		
12342	E.G. Simmons	Cotton duck		

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18178	K.B. Raper	Forest soil		
66510	O.R. Collins	Didymium iridis		
66512	O.R. Collins	Didymium iridis		
66537	O.R. Collins	Didymium iridis		
66538	O.R. Collins	Didymium iridis		
66539	O.R. Collins	Didymium iridis		
66540	O.R. Collins	Didymium iridis		
66541	O.R. Collins	Didymium iridis		
66542	O.R. Collins	Didymium iridis		
66549	O.R. Collins	Didymium iridis		
66550	O.R. Collins	Didymium iridis		
66568	O.R. Collins	Didymium iridis		
66571	O.R. Collins	Didymium iridis		

Source: American Type Culture Collection, Folio Infobases, November, 1992.

Peru

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ATCC#	Depositer:	Biomaterial:	Purpose:	U.S.Pat#
55092	Bristol-Myers	Soil		claim
53206	Bristol-Myers	Soil	Production of antibiotic	4,732,976
39143	Bristol-Myers	Soil	Production of antibacterial and antitumor antibiotic	4,464,467 and 4,508,647
49582	J.G. Tully	Hemolymph of corn maggot		
43728	DSM	Soil		
19660	S.M. Rosenthal	Human septicemia	Produces septicemia in mice	
52699	UAMH	Conifer wood chips and bark		
24430	J.L. Crane	Soil		
22488	S.E. Gochenaur	High altitude, wet, tussock grassland soil		
28390	L.H. Huang	Soil		
18531	J.L. Crane	Soil		
22490	S.E. Gochenaur	Cold desert soil		
44461	H.A. van Kesteren	Chenopodium quinoa stem		

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18512	J.S. Knox	Isolated from soil on pollen		
18511	S.E. Gochenaur	Soil		
30880	WRAIR	human		
30794	T.M. Sonneborn	pool at 3,658 M elevation		
30678	T.M. Sonneborn	Macchu Picchu, Peru - Paramecium tetraurelia		
PV-423	C.E. Fribourg	Nicotiana clevelandii		
PV-638	G. Adam, DSM	Nicotiana glutinosa		
PV-637	G. Adam, DSM	Nicotiana benthamiana		
PV-48	R.P. Kahn	Gomphrena globosa		

Source: American Type Culture Collection, Folio Infobases, November, 1992.

Venezuela

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ATCC #	Depositer	Material	Purpose	US Pat.#
39208	Merck & Co.	Soil	Production of tejeramycin	4,656,036
33166	F. Pichinoty	Soil		
33167	F. Pichinoty	Soil		
33168	F. Pichinoty	Soil		
35524	J. Delville	Skin of patient with lepromatous leprosy		
35397	J.M. Wells	Honeydew melon		
35093	DSM	Marine sediment		
27083	G. Luedemann	Soil		
14899	E.R. Squibb & Sons	Soil	Production of amphotericin A and B	2,908,611 and 2,908,612
12595	Roussel Corp.	Soil	Production of O-carbamyl-D-serine	2,885,433
10712	Parke, Davis & Co.	Soil	Produces chloramphenicol	
59472, 59473	U. Muller	Human DNA Segment		
14850	NRRL	Nuts		
26274	G. Malagut	Sesamum indicum		

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24434	NCDC	Cat		
52730	C. Marcano	Human fingernail		
18909	F.M. Rush-Munro	Hair of forest rat		
11498	NRRL	Soil	Produces proteolytic enzymes	
26220	L. de Montemayor	Soil		
62656	G.J. Samuels	Dead tree		
46693	A.R. Rossman	Bark		
18150	W.C. Snyder	Theobroma cacao		
32628	M.B. de Albornoz	Mycetoma		
56732	J.C. Krug	Burro dung		
56251	J.C. Krug	Bird dung		
44535	CDC	Human skin		
44079	D.C. Marcano	Palm of hand of 3-year-old girl		
44080	D.C. Marcano	Sole of foot of 17-year-old girl		
44081	D.C. Marcano	Sole of foot of 19-year-old girl		
22922	G. Malaguti	Corn		
22923	G. Malaguti	Corn		
22921	G. Malaguti	Corn leaves		
22920	G. Malaguti	Corn		
56132	O.L. Borges	Sorghum bicolor		
76117	S. Udagawa	Soil		
60767	A. Sivanesan	Sorghum vulgare		
15649	W.L. Gordon	Sesamum indicum wilt		

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36622	J.C. Krug	Horse dung		
36712	J.C. Krug	Cow dung		

Source: American Type Culture Collection, Folio Infobases, November, 1992.

India

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ATCC #	Depositor	Material	Purpose	US Pat.#
53646	Bristol-Myers	Soil bacteria	N/A	Claim
55076	Bristol-Myers	Soil bacteria	N/A	Claim
31466	Pfizer	Soil bacteria	Production of antibiotic compound	4,195,079
31049	Lepetit Labs	Soil bacteria	Production of gardimycin	4,022,884
33076	Lepetit Labs	Soil bacteria	Production of ramoplanin	4,303,646
31121	Lepetit Labs	Soil bacteria - Nimodi Village	Produces teichoplanins	4,239,751
31430	Bristol-Myers	Soil bacteria	Production of antibiotics	4,250,170
21828	Bristol-Myers	Soil bacteria from Indor	Production of the antibiotic	3,880,994
31805	Bristol-Myers	Soil bacteria	Production of antibiotic complex	4,341,768
31638	Pfizer	Soil bacteria	Production of antibiotics	4,287,182
31203	Bristol-Myers	Soil bacteria	Production of capreomycin	4,026,766
53710	Bristol-Myers	Soil bacteria	N/A	Claim
31724	Bristol-Myers	Soil bacteria	Production of nocardicins	4,320,19
31725	Bristol-Myers	Soil bacteria	Production of nocardicins	4,320,19
31086	Bristol-Myers	Soil bacteria	Production of sorbistin	4,012,576

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31295	Bristol-Myers	Soil bacteria	Production of antibiotic complex	4,169,096
31296	Bristol-Myers	Soil bacteria	Production of antibiotic complex	4,169,096
31297	Bristol-Myers	Soil bacteria	Production of antibiotic complex	4,169,096
31298	Bristol-Myers	Soil bacteria	Production of antibiotic complex	4,169,096
53712	Bristol-Myers	Soil bacteria	Production of antifungal antibiotic	4,956,374
31217	Bristol-Myers	Soil bacteria	Production of apramycin, nebramycin and tobramycin	4,032,404
31218	Bristol-Myers	Soil bacteria	Production of apramycin, nebramycin and tobramycin	4,032,404
31219	Bristol-Myers	Soil bacteria	Production of apramycin, nebramycin and tobramycin	4,032,404
39012	Pfizer	Soil bacteria	Production of CP-56,063 and CP-56,064	4,450,237
31431	Bristol-Myers	Soil bacteria	Production of rachelmycin	4,301,248
13382	Lederle Labs	Soil bacteria	Production of nucleocidin	2,914,525
21344	Pfizer	Soil bacteria	Production of mitocromin	3,852,425
53527	Merck	Soil bacteria	Production of virginiamycin M1 and its analogs	4,476,111
53784	Bristol-Myers	Soil bacteria	N/A	Claim
53807	Bristol-Myers	Soil bacteria	Production of hydramycin	4,952,604
53548	Bristol-Myers	Soil bacteria	Production of 3,7-dihydroxytropolone	4,952,604
53904	Bristol-Myers	Soil bacteria	N/A	Claim
20927	Merck	Soil fungus	Production of pyranyl ester	4,952,604

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			antifungal agent	
53903	Bristol-Myers	Soil bacteria	N/A	Claim
31668	Lepetit Labs	Soil bacteria	Production of antibiotic	4,476,111

Source: American Type Culture Collection, Folio Infobases, November, 1992.

Malaysia

Commercially-useful Biomaterials from Malaysia deposited in the USA and now excluded from the Biodiversity Convention.

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ATCC #	Depositer	Material	Purpose	US Pat.#
43763	NCPFB	Pineapple, Ananas comosus		
23145	R.A. Lewin	Brown, silty sand, Penang		
23191	R.A. Lewin	Brown, silty sand, Penang		
23605	A.D. Alexander	Gombak River water via hamster inoculation		
23602	A.D. Alexander	Purified water via hamster inoculation		
23607	A.D. Alexander	Freshwater pool via hamster inoculation		
23610	A.D. Alexander	River water via hamster inoculation		
23603	A.D. Alexander	Kidney of Rattus whiteheadi		
23608	A.D. Alexander	Gombak River water via hamster inoculation		
23604	A.D. Alexander	River water via hamster inoculation		
12472	Preceptrol	Fresh water	Produces restriction endonuclease	
23607	A.D. Alexander	Freshwater pool via hamster inoculation		
49072	N.J. Palleroni	Rice, Oryza sativa		
32204	CBS	Oidium heveae		

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34331	S.-I. Udagawa	Milled rice	Produces terphenylin and xanthoascin	
46603	NHL	Soil	Produces sterigmato-cystin, o-methylsterigmatocystin, chaetocin & chaetochromin	
76222	C. Babcock	Rice	Produces chlamydosporol	
16556	CMI	Wilted plants		
24367	CMI	Theobroma cacao		
15636	W.L. Gordon	Celery		
15638	W.L. Gordon	Banana		
28560	E. Punithalingam CMI	Cocos muciferae		
28563	E. Punithalingam CMI	Musa sp.		
24458	G.S. Lan	Larva of rhinoceros beetle		
24427	M.G. Tulloch CMI	Soil		
52221	G.A. Zentmyer	Rubber plant		
58105	H.H. Ho	Hevea brasiliensis leaf		
66634	M.D. Coffey	Rubber tree, Hevea brasiliensis		
66767	M.D. Coffey	Rubber tree, Hevea brasiliensis		
58815	CMI	Hevea brasiliensis bark and fruit		
48781	G.A. Zentmyer	Theobroma cacao pod		
48840	G.A. Zentmyer	Theobroma cacao canker		
22118	J.D. Rogers	Cow dung	Produces conidial and perithecial stromata in	

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			pure culture	
32192	B.C. Sutton CMI	Lanea grandis		
52806	CMI	Pinus caribaea		
18905	CMI	Theobroma cacao		
24151	S.C. Jong	Sandy beach		
15508	M. Christensen	Soil		
16915	K.B. Raper	Soil	Produces terreutin and 3,6-dihydroxy-2,5-toluquinone	
34055	G. Hadley	Coils in protocorm		
26130	J.K. Carey	Rubber tree		
26129	J.K. Carey	Dead rubber stump		
26133	J.K. Carey	Hevea trunk	Production of gases	
16700	M.E. Gallegly	Hevea		
28961	G. Harvais	Rice		
18876	CMI	Hevea sp. root		
30128	NIH	Anopheles hackeri		
30037	K. Powers, NIH	Macaca mulatta		
30121	NIH	Macaca nemestina		
30129	NIH	Macaca fascicularis, West Malaysia		
30149	NIH	Anopheles bala-bacensis introlatus, West Malaysia		
30150	NIH	Macaca nemestrina, West Malaysia		
30155	NIH	Macaca fascicularis		
30145	NIH	Human		

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30157	NIH	Mosquito		
30163	NIH	Macaca nemestrina		
30164	NIH	Anopheles bala-bacensis introlatus		
30122	NIH	Plasmodium inui		
30127	NIH	Plasmodium inui		
30156	NIH	Macaca mulatta, West Malaysia		
30162	NIH	Macaca nemestrina		
30195	NIH	Anopheles leucophyrus		
30196	NIH	Macaca fascicularis		
30198	NIH	Anopheles hackeri		
30199	NIH	Presbytis obscurus		
30153	NIH	Anopheles hackeri		
30158	NIH	Human		
30192	NIH	Macaca fascicularis		
50098	E.M. Simon	Jungle stream, Serdang		
50087	E. Simon	Jungle stream		
50088	E. Simon	Pond		
50065	E.M. Simon/E.B. Meyer	Swamp, K. Rantau Abang		
50066	E.M. Simon/E.B. Meyer	Jungle stream near campus of University Pertanian Malaysia		
50084	E.M. Simon	Jungle stream		
50085	E.M. Simon	Jungle stream		
30536	D. Weinman	Kissing bug, Triatoma rubro-fasciata		

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30537	D. Weinman	Kissing bug, <i>Triatoma rubro-fasciata</i>		
30282	D. Weinman	Monkey, <i>Macaca nemestrina</i>		
30283	D. Weinman	Monkey, <i>Macaca nemestrina</i>		
30154	NIH	<i>Hylobates molock</i>		
VR-391	Yale Arbovirus Res.	Bunyavirus		
VR-453	Yale Arbovirus Res.	Bunyavirus		
VR-381	Yale Arbovirus Res.	Flavivirus		
VR-98	W.R. Dowdle/ R.Q. Robinson	Orthomyxovirus, Human		
VR-369	R.E. Shope	Togavirus, Alphavirus		
56694	G.S. Bulmer	Human		
56696	G.S. Bulmer	<i>Cryptococcus neoformans</i>		

Source: American Type Culture Collection, Folio Infobases, November, 1992.

Philippines

Commercially-useful Biomaterial from the Philippines deposited in the USA and now excluded from the Biodiversity Convention

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ATCC #	Depositor	Material	Purpose	US Pat.#
31491	Bristol Labs	Soil	Production of antitumor, antibacterial complex BBM-928	4,360,458 4,631,256
33718	A.A. Yousten WHO	Mosquito larvae		
33719	A.A. Yousten WHO	Mosquito larvae		
35692	W.L. Barksdale	Bone marrow of leprosy patient	Produces tuberculostearic acid and pyrazine carboxylamidase	
39664	C. Schaffner	Mud from rice field, Luzon	Production of crisamicin	4,639,467
14425	R. Hugh	Tobacco		
19305	NCPPB	Nicotiana tabacum		
35402	W.L. Barraquio	Washed rice root	Nitrogen fixation	
11635	Eli Lilly	Soil	Production of erythromycin	2,653,899
31054	Takeda Chem.	Soil	Production of the antibiotic C-2801-X	4,017,485
39150	Bristol Labs	Soil	Production of antibacterial Bu-2659	4,468,386 and 4,504,580
53240	Bristol-Myers	Soil, Bohol Island		Claim
53709	Bristol-Myers	Soil, Mt. Apo, Mindanao	Production of eponemycin	Claim

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31055	Takeda Chem.	Soil, Panay Island	Production of the antibiotic C-2801-X	4,017,485
31056	Takeda Chem.	Soil, Panay Island	Production of the antibiotic C-2801-X	4,017,485
31213	Chas. Pfizer Inc.	Soil	Production of antibiotics 43,334 and 43,596	4,032,632
52851	T.H. Quimio	Dead woods		
44597	T. Kobayashi	Benget pine, Pinus kesiya		
62263	T.W. Mew	Rice leaves	Produces host-specific toxin which causes brown spot disease	
32097	T.H. Quimio	Grape	Causes anthracnose on a majority of Philippine fruit crops	
46198	T. Quimio	Papaya		
48240	FRR	Pine forest soil		
48205	FRR	Pine forest soil	Type culture of Eupenicillium luzoniacum	
76255	R.C. Ploetz	Banana cv. Latundan	Vegetative compatability	
76258	R.C. Ploetz	Banana cv. Cavendish	Vegetative compatability	

Source: American Type Culture Collection, Folio Infobases, November, 1992.

Africa
"Congo"

***Commercially-useful Biomaterials from Congo deposited in the USA
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ATCC #	Depositer	Material	Purpose	US Pat.#
33963	NCIB	Cultivated soil		
33964	NCIB	Cultivated soil		
23579	A.D. Alexander	Human		
16917	K.B. Raper and D.I. Fennell	Soil		
66525	M. Christensen	Grassland soil		
66526	M. Christensen	Grassland soil		
24340	R.S. Khan	Antelope dung		
34597	F.J. Upsher	Soil		
18388	A.C. Stolk	Soil		
22230	B. Wiley	Soil		
24531	R. Vanbreuseghem	Infection of paranasal sinuses		
36367	CMI	Fungus		
22050	A.C. Stolk	Soil		
18425	B.J. Wiley	Woodland soil		
18877	CMI	Soil		
26493	R.S. Khan	Antelope dung		

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30222	J.P. Kreier	forest mouse, <i>Thamnomys surdaster</i>		
VR-562	R.E. Shope	Serum from adult European male laboratory worker		
VR-1216	NIAID	Immune ascitic fluid		

Source: American Type Culture Collection, Folio Infobases, November, 1992.

Africa

Ethiopia

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ATCC #	Depositer	Material	Purpose	US Pat.#
35526	J. Delville	Skin of patient with lepromatous leprosy		
35530	J. Delville	Skin of mouse with lepromatous leprosy		
35531	J. Delville	Skin of mouse with lepromatous leprosy		
19866	NCPPB	Helianthus annuus		
53843	Dainippon Ink & Chemicals	Saline lake		Claim
49084	N.J. Palleroni	Abyssinian banana, Ensete ventricosum		
23382	M.P. Starr	Plantago lanceolata		
19317	NCPPB	Ricinus communis		
36327	J. Kranz	Coffea arabica		
50119	WRAIR/WHO Leishmania Reference Center	human, Wollo Province, 1972		
50127	WRAIR/WHO Leishmania Reference Center	human, Begemender, 1965		

Source: American Type Culture Collection, Folio Infobases, November, 1992.

Kenya

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ATCC #	Depositer	Material	Purpose	US Pat.#
31588	Schering	Soil	Production of kijanimicin	claim
39149	Schering	Soil	Production of antibiotic	claim
31732	G.V. Mann	Cultured milk	Production of milk factor	4,411,916
55043	Merck & Co.	Soil	Production of an antihypertensive	5,057,552
12878	NCIB	Strain		
33921		Clinical isolate		
35975	F. Lingens	Soil		
58406	J. Krug	Antelope dung		
58407	J. Krug	Zebra dung		
28433	CMI	Hedgehog		
28434	CMI	Hedgehog		
28435	CMI	Hedgehog		
28436	CMI	Hedgehog		
28437	CMI	Hedgehog		
28438	CMI	Hedgehog		
28439	CMI	Hedgehog		
28440	CMI	Hedgehog		

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28441	CMI	Hedgehog		
62430	J.C. Krug	Soil		
60827	CMI	Coffea arabica		
60829	CMI	Gossypium sp.		
26486	R.S. Khan	Hyrax dung		
56542	J.C. Krug	Elephant dung		
24776	R.S. Khan	Hyrax dung		
56544	J.C. Krug	Antelope dung		
60148	J.C. Krug	Herbivore dung	Produces chaetochromin	
56548	J.C. Krug	Elephant dung		
56549	J.C. Krug	Buffalo dung		
56550	J.C. Krug	Wildebeest dung		
24777	R.S. Khan	Hyrax dung		
62434	J.C. Krug	Soil		
56726	J.C. Krug	Soil		
62435	J.C. Krug	Soil		
60155	J.C. Krug	Soil		
56730	J.C. Krug	Antelope dung		
56731	J.C. Krug	Soil		
58417	J.C. Krug	Elephant dung		
56248	J.C. Krug	Dung		
60158	J.C. Krug	Herbivore dung		

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56555	J.C. Krug	Herbivore dung		
60160	J.C. Krug	Elephant dung		
60163	J.C. Krug	Soil		
52637	A.H. Ramos	Coffea arabica		
24734	H.M. Cameron	Chimpanze		
34602	R.M. Natrass	Coffea arabica		
22279	D. Malloch	Zebra dung		
22141	D. Malloch	Dung		
42652	CMI	Sugarcane		
24470	R.S. Khan	Buffalo dung		
42560	Y.M. Clayton	Scalp hair of child		
36708	J.C. Krug	Cow dung		
18507	CMI	Cob of Zea mays		
58123	G.H. Boerema	Phaseolus vulgaris pods		
24709	R.S. Khan	Rock hyrax dung		
36709	J.C. Krug	Rock hyrax dung		
24778	R.S. Khan	Zebra dung		
26492	R.S. Khan	Dung of duiker		
56722	J.C. Krug	Duiker dung		
62441	J.C. Krug	Soil		
66236	R.S. Khan	Buffalo dung		
24341	R.S. Khan	Elephant dung		
24780	R.S. Khan	Cow dung		

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30816	J. Janovy, Jr.	Lizard, <i>Latastia longicauda revoili</i>		
30501	R. Herman	Human		
30722	T.M. Sonneborn	Loiyangalani Stream		
VR-463	R.E. Shope	Boophilus and Rhipicephalus adult ticks		
VR-627	R.E. Shope	Salivary glands of adult male bat		
PV-420		<i>Nicotiana benthamiana</i>		
45039	J. Stanley	Cassava latent geminivirus West Kenyan isolate, <i>Nicotiana benthamiana</i>		
PV-270	K.R. Bock	<i>Nicotiana clevelandii</i>		
PVAS-516	G. Thottappilly	Rabbit		
42921	F. Fatichenti	Soil		
42920	F. Fatichenti	Soil		
42922	F. Fatichenti	Soil		
42923	F. Fatichenti	Soil		
42924	F. Fatichenti	Soil		
42925	F. Fatichenti	Soil		
26489	R.S. Khan	Elephant dung		

Source: American Type Culture Collection, Folio Infobases, November, 1992.

Africa

Zimbabwe

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ATCC #	Depositer	Material	Purpose	US Pat.#
35642	P. Somasegaran	Macrotyloma africanum		
35168	PDDCC	Soybean, Glycine max		
4315	I.F. Huddleson	Human		
14637	M.A. Gordon	Scabs from cattle		
27024	M. Tsukamura	Sputum of patient with pulmonary disease		
35176	PDDCC	Alfalfa		
29073	M.P. Starr	Sugar, Chiredzi		
62428	J.C. Krug	Roadway soil		
64642	R.S. Khan	Roadway soil and sand		
66101	E. Butler	Orange orchard soil		
64640	R.S. Khan	Dry soil in open scrub forest		
26102	W.C. Snyder	Corn		
60187	P.E. Nelson	Coffea arabica		
15344	M.P. Backus	Soil		
16694	M.E. Gallegly	Apple tree roots		

Source: American Type Culture Collection, Folio Infobases, November, 1992.

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