

Research Support Facilities

6.1 Animal House Facility

NIMR has an animal facility which maintains laboratory mice, rabbits as per CPCSE guidelines. Laboratory mice are used for screening the antimalarials, host parasite relationship and maintenance of rodent plasmodia. There is an experienced veterinarian looking after the same. Experiments are performed with the approval of the scientific advisory committee and the animal ethics committee of the institute.

6.2 Repository of Biological Material

6.2.1 Mosquito Species

The details of mosquitoes maintained in the NIMR insectary are furnished in Table 6.2.1.

6.2.2 Parasite Species

Parasite Bank is supporting a large number of organizations working on various aspects of

malaria. Biological materials including non-human and human plasmodia preserved/maintained in Malaria Parasite Bank were supplied to various research organisations. During the reporting period a total of 38 isolates were collected from different parts of the country. Out of these collected isolates, 27 were *P. falciparum* and nine were *P. vivax* isolates. Details of human and non-human malaria parasite isolates collected are shown in Tables 6.2.2 and 6.2.3. Screening of medicinal plant extracts/fractions for their anti-plasmodial activity against CQ sensitive and resistant *P. falciparum* isolates is a routine activity of malaria parasite bank.

Cell lines available at Malaria Parasite Bank

- Hepatoma cell line: Hep G2 A16 used in the *in vitro* cultivation of exo-erythrocytic stage malaria parasites

Table 6.2.1. Details of mosquito species maintained at NIMR Insectary

Mosquito species	Strain/Origin	Mitotic karyotype/ Y-chromosome	Sibling species
<i>Anopheles culicifacies</i>	Burari	Sub-metacentric	A
<i>An. culicifacies</i>	Dehra	Sub-metacentric	A
<i>An. culicifacies</i>	Rameswaram	Sub-metacentric	A
<i>An. culicifacies</i>	Jabalpur	Sub-metacentric	C
<i>An. culicifacies</i>	Rourkela	Sub-metacentric	C
<i>An. culicifacies</i>	JP-2	Sub-metacentric	C
<i>An. stephensi</i>	Haryana		
<i>An. stephensi</i>	Punjab		
<i>An. stephensi</i>	Delhi		
<i>An. stephensi</i>	Okhla, Delhi		
<i>An. fluviatilis</i>	Rourkela		T
<i>Culex quinquefasciatus</i>	BSSS (Sensitive to biocide)		
<i>Aedes aegypti</i>	Delhi		
Mutant Lines			
<i>An. stephensi</i>	Black larva with white eye		
<i>Culex quinquefasciatus</i>	Red eye		

Table 6.2.2. Human Malaria Parasites preserved in the Parasite Bank

Parasite species	Collection sites		No. of isolates collected/years of collection			Total
	State	District	1992–2004	2005–06	2007–08	
<i>P. falciparum</i>	Andhra Pradesh	Visakhapatnam	12	—	—	
	Assam	Sonapur	20	—	—	
		Tezpur	6	—	—	
		Nalbari	—	1	—	
	Chhattisgarh	Jagdalpur	14	—	—	
		Bilaspur	—	26	—	
	Delhi		191	—	2	
	Gujarat	Anand	4	—	—	
		Kheda	7	—	—	
	Haryana	Gurgaon	25	—	—	
	Karnataka	Mangalore	0	14	—	
	Madhya Pradesh	Mandla/Jabalpur	14	—	—	
	Meghalaya	Tura	0	18	—	
	Mizoram	Kolasib	—	—	6	
	Orissa	Rayagada	29	—	—	
		Sundargarh	42	—	—	
	Rajasthan	Alwar	25	—	—	
		Bharatpur	35	—	—	
		Jaisalmer	38	—	—	
	Tamil Nadu	Chennai	0	4	—	
		Ramanathapuram	1	—	19	
	Uttar Pradesh	Baharaich	22	—	—	
		Gautam Budh Nagar	37	—	—	
		Ghaziabad	17	—	—	
	West Bengal	Allahabad	60	—	—	
		Kolkata	18	—	—	
		Midnapur	1	—	—	
	Total		618	63	27	708
<i>P. vivax</i>	Karnataka		0	6	—	6
	Delhi, Uttar Pradesh, Orissa		53	—	—	53
	Tamil Nadu		0	9	9	18
	Total		53	15	9	77
<i>P. malariae</i>	Orissa		4	—	—	4
	Delhi		1	—	—	1
	Total		5	—	—	5
Total collection of <i>P. falciparum</i> isolates			708			
Total collection of <i>P. vivax</i> isolates			77			
Total collection of <i>P. malariae</i> isolates			5			
Total human malaria parasites			790			

- Myeloma cell line: SP2
- Hybridomas: 2A 10 (anti-*P. falciparum* sporozoite antibody secreting cells; 2 F2 1

A7 (anti-*P. vivax* sporozoite antibody secreting cells)

Table 6.2.3. Non-human malaria parasites preserved in the Parasite Bank

Parasite	Species	Susceptibility to antimalarials
Simian malaria	<i>P. cynomolgi bastianelli</i> (CDRI)	Not done
	<i>P. cynomolgi bastianelli</i> (NICD)	-do-
	<i>P. knowlesi</i> (NICD)	-do-
	<i>P. knowlesi</i> (CDRI)	-do-
	<i>P. fragile</i> (CDRI)	-do-
Avian malaria	<i>P. gallinaceum</i>	Not done
	<i>P. relictus</i>	-do-
Rodent malaria	<i>P. berghei</i> (CDRI)	CQ-Resistant
	<i>P. berghei</i> *+	CQ-Sensitive
	<i>P. berghei</i>	Quinine-Resistant
	<i>P. berghei</i> ANKA	Not done
	<i>P. berghei</i> (NK65) PGI Chandigarh	-do-
	<i>P. chabaudi</i> (Paris)	-do-
	<i>P. vinckei petteri</i> 279 BY	-do-
	<i>P. yoelii nigeriensis</i> (ICGEB)	-do-
	<i>P. yoelii nigeriensis</i> (CDRI)	Multi-resistant
	<i>P. yoelii nigeriensis</i> (LSHTM)**+	Not done
	<i>P. yoelii yoelii</i> (265 BY) Paris**	-do-

+ Infective gametocyte producing strain; *Oocyst positive in *An. stephensi*; **Oocyst & sporozoite positive in *An. stephensi*.

6.3 Library

The Institute has one of the best libraries in the country in the field of malaria having more than 6955 books, 4283 bound journals, 3673 reprints, 18 video cassettes, 27 audio cassettes, 20 microfilms, 19 theses and 106 national and international reports. About 52 journals (39 Foreign and 13 National) are being subscribed besides 8 journals which are received on complimentary and exchange basis. About 201 new books had been added during this financial year. The library renders its services not only to the scientists/research scholars of the Institute but also to various national and international universities and organisations. Library has also been serving its users through DELNET. Other services such as information retrieval, citation index, internet facility, inter library loan facility, reprographic services, etc. are also being provided to the users. J Gate and JCCC@ICMR & Proquest Medical Database are being provided to the NIMR scientists in Delhi and its IDVC field units located in different parts of India. In the process of modernisation, application



96-capillary automated DNA sequencer

of barcode system is in progress. Library provides abstracts, references, CAS and SDI services, Med-line CD search, etc. to its users.

6.4 Central Instrumentation Facility

The Central instrumentation facility of NIMR has all modern equipments including 96-capillary DNA sequencer, LCMS/MS, Real Time PCR, HPLC, Flow cytometer, etc. In addition NIMR has also has a liquid nitrogen plant. □