



# ICMR BULLETIN

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## Visibility of Indian Biomedicine and Life Sciences Journals is Escalating

Dr. N.C. Jain

With the exponential growth in the rate of generation of S&T information in recent years, the process of communication of information has been becoming increasingly arduous. Traditionally, publication in a learned journal is considered the most appropriate and acceptable means of informing the peer community of the new information generated. Research paper publication in a journal is thus an intrinsic and inevitable facet of doing science as a scholarly biomedicine journal renders five main services to an interested researcher: (i) provide a place to register work; (ii) legitimize research through the overall quality of its editorial process, especially peer review; (iii) act as an archive; (iv) distribute research to its readers either directly or through libraries; and (v) serve communities (practicing physicians).

It is well known that scientists try their best to communicate their research findings in the 'best' available general journals or specialties journals or now even super specialties journals ever since the birth of the first scientific journals came into existence with the publication of *the Philosophical Transactions of the Royal Society, London* and *Journal des Scavans, Paris* in 1665. Such journals are also called primary journals. They render two main services: *archival service* – enabling the reader to study what is already known; and *alerting or awareness service* – informing the reader quickly as to what is newly discovered in his chosen area of study. Other forms besides journals include patents, theses, research reports, etc. The other category, 'Secondary journals' give a picture of the advance of the wave front of knowledge. The idea of abstract journals was conceived to fill the lacunae of ever growing scientific information making it impossible to access each and every one of journals in circulation. The first abstract journal, *Pharmaceutisches Zentral Blatt* was started in Germany in 1830. Now abstracting services are available in all branches of S&T – *PubMed, Biological Abstracts, Chemical Abstracts, etc.* Other forms include the indexing periodicals and current awareness services – *Indian Science Abstracts, Current Contents, etc.* and tertiary publications constitutes the third category. Here, basically the contents of primary publications are summarized over longer periods of time, like, *Annual Review of Immunology, Advances in Lipids, Progress in Industrial Microbiology, etc.* Other forms include state-of-art reports bibliographies, etc. Handbooks, dictionaries and text books represent the final stage in the chain of transfer of information.

Over the years, scientists have been commonly using three main types of communication : Oral or podium, written and poster communication. With developments in information technology, electronic journals *i.e.*, on-line publication of scientific journals have now become a reality. It is estimated that there are about 250,000 periodicals in all, including 25,000 in science, technology and medicine (STM). Of these, 15,000 are refereed scholarly periodicals and about 12,000 of these are available online<sup>1</sup>.

Because of stringent inclusion criteria in major global STM indexing/abstracting services<sup>2-4</sup>, the majority of journals are from just 8-10 developed countries[ US, England, Germany, the Netherlands, Japan, Switzerland, France and Italy] and representation of developing countries is meager<sup>5</sup>. The critical elements of journal selection by major global STM indexing/abstracting services are broadly as follows : scope and coverage; quality of contents; quality of editorial work; production quality; audience; types of content; and geographic coverage<sup>2-4</sup>.

However, of late the impact of Indian science and technology(S&T) journals, especially in the fields of biomedicine and life sciences is escalating though slowly but surely<sup>6,7</sup>. The present write-up presents the current coverage of Indian biomedicine and life sciences journals in the premier open access database, the *PubMed*<sup>8</sup> and provides the latest 2010 Impact Factor (IF), as available in the annual publication, the *Journal Citation Reports*(JCR) of the Thomson Reuters 2010<sup>9</sup> as also suggest ways and means to augment the visibility of other Indian biomedical journals presently not included in the *PubMed*. The publication of the JCR (with IF of journals) began way back in 1975.

The coverage of Indian biomedicine and life sciences journals has been carried out in the *PubMed*<sup>8</sup>, the principal online bibliographic citation database of the National Library of Medicine, National Institutes of Health, Maryland, USA; and the latest IF taken from the *Journal Citation Reports* (JCR) 2010<sup>9</sup>.

The *PubMed* listed 5563 journals indexed from various countries. A total of 39 ( 0.70 %) journals are included from India. Of these 39 journals, 14 ( 35.90%) are covered in *JCR* 2010 also. Specifically, only five Indian journals *viz.*, *Indian Journal of Medical Microbiology* [pISSN0255-0857, e ISSN 1998-3646], published by the Indian Association of Medical Microbiologists, the *Indian Journal of Medical Research*[ pISSN 0971-5916], published by the Indian Council of Medical Research, New Delhi, *Journal of Biosciences* [pISSN 0250-5991, eISSN 0973-7138] from the Indian Academy of Sciences, Bangalore,

*Journal of Genetics*[ pISSN 0022-1333] also from the Indian Academy of Sciences, Bangalore and *Journal of Postgraduate Medicine* [pISSN 0022-3859, CD ISSN 0972-2823], an official publication of the Staff Society of Seth G.S. Medical College and K.E.M. Hospital, Mumbai have IF of more than 1.000 in 2010 and they are indexed in *PubMed* also ( Table I).

**Table I.** List of 39 Indian journals covered in the *PubMed* (n= 5563) with 2010 IF, wherever available

Sl. No.	Journal title	IF 2010
1.	Annals of Cardiac Anaesthesia	
2.	Bulletin of the Indian Institute of History of Medicine (Hyderabad)	
3.	Hindustan Antibiotics Bulletin	
4.	Indian Heart Journal	
5.	Indian Journal of Biochemistry & Biophysics	0.824
6.	Indian Journal of Cancer	
7.	The Indian Journal of Chest Diseases & Allied Sciences	
8.	Indian Journal of Dental Research	
9.	Indian Journal of Dermatology, Venereology and Leprology	0.932
10.	Indian Journal of Experimental Biology	0.702
11.	Indian Journal of Gastroenterology	
12.	Indian Journal of Leprosy	
13.	Indian Journal of Medical Ethics	
14.	Indian Journal of Medical Microbiology	1.006
15.	The Indian Journal of Medical Research	1.826
16.	Indian Journal of Medical Sciences	
17.	Indian Journal of Ophthalmology	0.827
18.	Indian Journal of Pathology & Microbiology	0.570
19.	Indian Journal of Pediatrics	0.502
20.	Indian Journal of Physiology and Pharmacology	
21.	Indian Journal of Public Health	
22.	The Indian Journal of Tuberculosis	
23.	Indian Pediatrics	0.900
24.	Journal of Biosciences	1.888
25.	Journal of Cancer Research and Therapeutics	
26.	The Journal of Communicable Diseases	
27.	Journal of Environmental Biology	
28.	Journal of Environmental Science & Engineering	
29.	Journal of Genetics	1.338
30.	Journal of Postgraduate Medicine	1.589
31.	The Journal of the Association of Physicians of India	
32.	Journal of the Indian Medical Association	

Sl. No.	Journal title	IF 2010
33.	Journal of the Indian Society of Pedodontics and Preventive Dentistry	
34.	Journal of Vector Borne Diseases	
35.	The National Medical Journal of India	0.541
36.	Neurology India	0.834
37.	Noise & Health	
38.	The Nursing Journal of India	
39.	Tropical Gastroenterology	

Thomson Reuters JCR 2010 covered a total of 8005 journals and it provides, among others, IF 2010 of journals. Of these, 93(1.16 %) journals are listed from India (Table II), and only five journals as mentioned above have 2010 IF of more than 1.000. Amongst all journals, *CA – A Cancer Journal for Clinicians* [pISSN 0007-9235] has the highest IF of 94.262 ! It is encouraging to note that the Indian journal, the *Bulletin of the Astronomical Society of India* [ISSN: 0304-9523], a quarterly published by the Astronomical Society of India, has become the first Indian journal to cross IF of 2.000 for the first time; its 2010 IF being 2.600.

**Table II.** List of Indian journals covered in JCR 2010 science edition

Abbreviated journal title	pISSN	Impact factor
ADV VIB ENG	0972-5768	0.125
ALLELOPATHY J	0971-4693	0.635
ANIM NUTR FEED TECHN	0972-2963	0.188
ANN INDIAN ACAD NEUR	0972-2327	0.415
ANN THORAC MED	1817-1737	1.06
ASIAN J CHEM	0970-7077	0.247
B ASTRON SOC INDIA	0304-9523	2.6
B MATER SCI	i0250-4707	0.944
BIOMED RES-INDIA	0970-938X	0.119
CURR SCI INDIA	0011-3891	0.897
DEFENCE SCI J	0011-748X	0.304
DISASTER ADV	0974-262X	0.407
E-J CHEM	0973-4945	0.716
HIMAL GEOL	0971-8966	0.147
IETE J RES	0377-2063	0.076
IETE TECH REV	0256-4602	0.37
INDIAN J AGR SCI	0019-5022	0.156
INDIAN J ANIM RES	0367-6722	0.078
INDIAN J ANIM SCI	0367-8318	0.147
INDIAN J BIOCHEM BIO	0301-1208	0.824
INDIAN J BIOTECHNOL	0972-5849	0.385
INDIAN J CHEM A	0376-4710	0.92
INDIAN J CHEM B	0376-4699	0.562
INDIAN J CHEM TECHN	0971-457X	0.373

Abbreviated journal title	pISSN	Impact factor
INDIAN J DERMATOL VE	0378-6323	0.932
INDIAN J ENG MATER S	0971-4588	0.15
INDIAN J EXP BIOL	0019-5189	0.702
INDIAN J GENET PL BR	0019-5200	0.141
INDIAN J HETEROCY CH	0971-1627	0.341
INDIAN J HORTIC	0972-8538	0.229
INDIAN J MAR SCI	0379-5136	0.204
INDIAN J MED MICROBI	0255-0857	1.006
INDIAN J MED RES	0971-5916	1.826
INDIAN J MICROBIOL	0046-8991	0.938
INDIAN J OPHTHALMOL	0301-4738	0.827
INDIAN J ORTHOP	0019-5413	0.285
INDIAN J OTOLARYNGOL	0019-5421	0.038
INDIAN J PATHOL MICR	0377-4929	0.57
INDIAN J PEDIATR	0019-5456	0.502
INDIAN J PHARM EDUC	0019-5464	0.163
INDIAN J PHARM SCI	0250-474X	0.455
INDIAN J PHARMACOL	0253-7613	0.303
INDIAN J PHYS	0973-1458	0.291
INDIAN J PURE AP MAT	0019-5588	0.254
INDIAN J PURE AP PHY	0019-5596	0.511
INDIAN J SURG	0972-2068	0.075
INDIAN J TRADIT KNOW	0972-5938	0.232
INDIAN J VIROL	0970-2822	1.133
INDIAN PEDIATR	0019-6061	0.9
INT J AGRIC STAT SCI	0973-1903	0.035
INT J DIABETES DEV C	0973-3930	0.509
INT J HUM GENET	0972-3757	0.238
J AGROMETEOROL	0972-1665	0.142
J ANAT SOC INDIA	0003-2778	0.05
J APPL ANIM RES	0971-2119	0.218
J ASTROPHYS ASTRON	0250-6335	0.531
J BIOSCIENCES	0250-5991	1.888
J CAMEL PRACT RES	0971-6777	0.163
J CANCER RES THER	0973-1482	0.825
J CHEM SCI	0974-3626	1.075
J CYTOL	0970-9371	0.333
J EARTH SYST SCI	0253-4126	0.941
J ESSENT OIL BEAR PL	0972-060X	0.309
J FOOD SCI TECH MYS	0022-1155	0.477
J FUNCT SPACE APPL	0972-6802	0.706
J GENET	0022-1333	1.338
J GEOL SOC INDIA	0016-7622	0.396
J INDIAN CHEM SOC	0019-4522	0.301
J PLANT BIOCHEM BIOT	0971-7811	0.412
J POLYM MATER	0973-8622	0.435
J POSTGRAD MED	0022-3859	1.589
J SCI IND RES INDIA	0022-4456	0.514

Abbreviated journal title	pISSN	Impact factor
J SPACECR TECHNOL	0971-1600	0.037
LEGUME RES	0250-5371	0.13
MAPAN-J METROL SOC I	0970-3950	0.288
MAUSAM	0252-9416	0.11
NATL ACAD SCI LETT	0250-541X	0.164
NATL MED J INDIA	0970-258X	0.541
NEUROL INDIA	0028-3886	0.834
ORIENT INSECTS	0030-5316	0.164
P INDIAN AS-MATH SCI	0253-4142	0.226
P NATL A SCI INDIA A	0369-8203	0.141
P NATL A SCI INDIA B	0369-8211	0.055
PHARMACOGN MAG	0973-1296	0.432
PRAMANA-J PHYS	0304-4289	0.561
RANGE MANAG AGROFOR	0971-2070	0.081
RES CROP	0972-3226	0.036
RES J BIOTECHNOL	0973-6263	0.284
RES J CHEM ENVIRON	0972-0626	0.292
SADHANA-ACAD P ENG S	0256-2499	0.279
T INDIAN CERAM SOC	0371-750X	0.159
VEGETOS	0970-4078	0
VET PRACT	0972-4036	0

Table III lists top 50 journals in terms of IF 2010. It is interesting to note that *Acta Crystallographica Section A: Foundations of Crystallography* [pISSN 0108-7673], continues to be the second highest IF (54.333) for 2010, with only *CA – A Cancer Journal for Clinicians* scoring higher<sup>9</sup>. Interestingly, the same pattern was observed in 2009, with IF then being 49.926. The main reason attributed to this high IF was a single review paper<sup>10</sup>. More importantly, the 2008 IF of this journal was 2.051<sup>11</sup>. This brings a few points to the fore, i.e. a review paper plays an important role in determining the IF of a journal. Also, one must look at the citation of an individual paper while undertaking any evaluation exercise, as IF alone may not provide the correct picture<sup>12</sup>.

**Table III.** List of top 50 journals based on Impact Factor (JCR 2010)

Rank	Abbreviated journal title	pISSN	Impact factor
1.	CA-CANCER J CLIN	0007-9235	94.262
2.	ACTA CRYSTALLOGR A	0108-7673	54.333
3.	NEW ENGL J MED	0028-4793	53.484
4.	REV MOD PHYS	0034-6861	51.695
5.	ANNU REV IMMUNOL	0732-0582	49.271
6.	NAT REV MOL CELL BIO	1471-0072	38.65
7.	NAT REV CANCER	1474-175X	37.178
8.	NAT GENET	1061-4036	36.377

Rank	Abbreviated journal title	pISSN	Impact factor
9.	NATURE	0028-0836	36.101
10.	NAT REV IMMUNOL	1474-1733	35.196
11.	LANCET	0140-6736	33.633
12.	CHEM REV	0009-2665	33.033
13.	NAT REV GENET	1471-0056	32.745
14.	CELL	0092-8674	32.401
15.	SCIENCE	0036-8075	31.364
16.	NAT BIOTECHNOL	1087-0156	31.085
17.	NAT NANOTECHNOL	1748-3387	30.306
18.	JAMA-J AM MED ASSOC	0098-7484	30.011
19.	NAT MATER	1476-1122	29.897
20.	ANNU REV BIOCHEM	0066-4154	29.742
21.	NAT REV NEUROSCI	1471-0048	29.51
22.	NAT REV DRUG DISCOV	1474-1776	28.712
23.	PHYSIOL REV	0031-9333	28.417
24.	ANNU REV PLANT BIOL	1543-5008	28.415
25.	ANNU REV ASTRON ASTR	0066-4146	27.444
26.	CANCER CELL	1535-6108	26.925
27.	ANNU REV NEUROSCI	0147-006X	26.756
28.	CHEM SOC REV	0306-0012	26.583
29.	NAT PHOTONICS	1749-4885	26.442
30.	CELL STEM CELL	1934-5909	25.943
31.	NAT IMMUNOL	1529-2908	25.668
32.	NAT MED	1078-8956	25.43
33.	IMMUNITY	1074-7613	24.221
34.	PROG POLYM SCI	0079-6700	22.87
35.	ENDOCR REV	0163-769X	22.469
36.	BEHAV BRAIN SCI	0140-525X	21.952
37.	ACCOUNTS CHEM RES	0001-4842	21.84
38.	ANNU REV GENET	0066-4197	21.774
39.	LANCET NEUROL	1474-4422	21.659
40.	ADV PHYS	0001-8732	21.214
41.	NAT METHODS	1548-7091	20.717
42.	NAT REV MICROBIOL	1740-1526	20.686
43.	MAT SCI ENG R	0927-796X	19.75
44.	PHYS REP	0370-1573	19.438
45.	NAT CELL BIOL	1465-7392	19.407
46.	ANNU REV PHARMACOL	0362-1642	19.238
47.	J CLIN ONCOL	0732-183X	18.97
48.	PHARMACOL REV	0031-6997	18.861
49.	ANNU REV PATHOL-MECH	1553-4006	18.778
50.	SURF SCI REP	0167-5729	18.593

A total of 14 unique biomedicine and life sciences journals are covered in both the databases (Table I). Incidentally all the five journals with more than 1.000 IF are open access. In fact, the directory of open access journals[ (doaj), www.doaj.org, provides 6998 free, full text quality controlled scientific and scholarly journals

from all over the world including India. It is hoped that some of these Indian journals with presently more than 1.000 IF will have more IF in the time to come as the IF is primarily based on the ratio of citations received to number of articles published. Because of open access, the citation count of journals especially of open access is on the rise. However, it is too early to arrive at any firm conclusion. But one good thing about Indian journals is that they do not demand publication or page charges.

A recent editorial discussed some critical concerns of biomedical journals in India<sup>13</sup>. Even China acknowledged that the country's scientific publishing had a "severe" problem with "a big gap between quality and quantity" and needed reform<sup>14</sup>. It is, however, suggested that all other biomedicine and life sciences Indian journals presently not covered by *PubMed* follow the Vancouver Style [A small group of editors of general medical journals met informally in Vancouver, British Columbia, in 1978 to establish guidelines for the format of manuscripts submitted to their journals. The group became known as the Vancouver Group. The Vancouver Group expanded and evolved into the International Committee of Medical Journal Editors (ICMJE) ([www.icmje.org](http://www.icmje.org)). Its Uniform requirements for manuscripts submitted to biomedical journals : Writing and editing for biomedical publication is followed by several biomedical journals] as also develop active collaboration with international professional associations like the World Association of Medical Editors [<http://www.wame.org/>], European Association of Science Editors [<http://www.ease.org.uk/>], [<http://www.councilscienceeditors.org/> ], COPE : Committee on Publication Ethics (<http://www.publicationethics.org/>) and COLLNET: Global Interdisciplinary Research Network for the Study of all Aspects of Collaboration in Science and Technology [<http://www.collnet.de/> ]. Encouragingly, the national initiative by the ICMR funded project, 'National database of Indian medical journals' by the National Informatics Centre (NIC), New Delhi provides among others, a bibliographic database of about 77 prominent peer-reviewed Indian biomedical journals indexed from 1985 onwards through indMED [<http://indmed.nic.in/>], as also full text of 41 Indian biomedical journals (Table IV) through medIND. One hopes that the proposed collaboration will enhance the chances of more Indian biomedicine and life sciences titles presently *not* covered in the *PubMed* as serious contenders for inclusion in the premier open access database.

**Table IV.** Full text Indian biomedical journals available on medIND

Sl. No.	Journal title
1.	Annals of Cardiac Anaesthesia
2.	Endodontology
3.	Health Administrator
4.	Health and Population: Perspectives and Issues
5.	Indian Journal of Aerospace Medicine
6.	Indian Journal of Allergy Asthma and Immunology
7.	Indian Journal of Anaesthesia
8.	Indian Journal of Chest Diseases and Allied Sciences
9.	Indian Journal of Clinical Biochemistry
10.	Indian Journal of Community Medicine
11.	Indian Journal of Gastroenterology
12.	Indian Journal of Medical & Paediatric Oncology
13.	Indian Journal of Medical Microbiology
14.	Indian Journal of Medical Research
15.	Indian Journal of Nephrology
16.	Indian Journal of Nuclear Medicine
17.	Indian Journal of Occupational and Environmental Medicine
18.	Indian Journal of Occupational Therapy
19.	Indian Journal of Otolaryngology and Head and Neck Surgery
20.	Indian Journal of Pediatrics
21.	Indian Journal of Pharmacology
22.	Indian Journal of Preventive and Social Medicine
23.	Indian Journal of Radiology and Imaging
24.	Indian Journal of Sexually Transmitted Diseases
25.	Indian Journal of Thoracic and Cardiovascular Surgery
26.	Indian Journal of Tuberculosis
27.	Indian Pediatrics
28.	J.K. Practitioner
29.	Journal, Indian Academy of Clinical Medicine
30.	Journal of Family Welfare
31.	Journal of Indian Academy of Applied Psychology
32.	Journal of Indian Academy of Forensic Medicine
33.	Journal of Indian Rheumatology Association
34.	Journal of Obstetrics and Gynecology of India
35.	Journal of The Anatomical Society of India
36.	Journal of Indian Association of Pediatrics Surgeons
37.	Journal of Indian Society of Pedodontics and Preventive Dentistry
38.	Lung India
39.	Medical Journal Armed Forces India
40.	NTI Bulletin
41.	Trends in Biomaterials and Artificial Organs

Source: Available from: <http://indmed.nic.in/>

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This write-up has been contributed by Dr. N.C. Jain, Scientist 'F', Division of Publication & Information, Indian Council of Medical Research, New Delhi.

## ABSTRACTS

### Some Research Projects Completed Recently

#### Comparative evaluation of conjunctival autograft versus limbal autograft in the surgery of primary pterygium

The study was undertaken on 50 eyes of 50 patients to compare the efficacy of bulbar conjunctival autograft and conjunctival limbal autograft in preventing recurrence in primary pterygium. Twenty five eyes were randomized into group A (bulbar conjunctival autograft) and 25 were put into group B (limbal graft). Age of the patients ranged between 32 to 64 years. All the patients had pterygium on the nasal side and none had any other history of any ocular disease. Majority of the patients (88%) presented due to cosmesis. BCVA was not normal in 70% of the patients. In 52% of the patients extent of pterygium was upto or even beyond the limbus.

Patients of both the groups were operated. Pterygium was excised followed by bulbar conjunctival grafting in group A and limbal grafting in group B. A total of 28% patients in bulbar conjunctival group had complications including recurrence in one case, whereas vision improved in 82.35% cases of group A and 88.88% of group B. Ninety six percent patients of group A were satisfied whereas all the cases of group B were satisfied after the treatment.

**Dr. Shuchi Verma**  
**Brig. Dr. B.P. Vats**

Department of Ophthalmology  
Army Hospital (Research & Referral)  
Delhi Cantt., New Delhi

#### Prognostic evaluation of karyotypic changes and telomerase activity in preleukaemic and leukaemic conditions

The study was undertaken to determine the karyotype and telomerase expression levels at the time of diagnosis

in 104 myelodysplastic syndrome (MDS) and 138 acute non lymphocytic leukaemia (ANLL) patients and to correlate these abnormalities with different FAB subtypes. It was also aimed to determine whether karyotype pattern and telomerase expression levels at the time of diagnosis could serve as indicators of leukaemic transformation in MDS patients and also as major prognostic indicators of survival and response to treatment in ANLL and MDS patients.

Chromosome analysis was carried out employing short term culture of the bone marrow samples of study patients and karyotypic abnormalities were identified following international system of human cytogenetic nomenclature (ISCN,1995). The telomerase activity in patients were carried out using a PCR-ELISA based semiquantitative telomeric repeat amplification protocol (TRAP). The telomerase activity levels were compared to that of a known telomerase positive standard and expressed as percentage activity compared to that of positive control.

Cytogenetic analysis revealed abnormalities of either numerical or structural types in 76% of MDS patients and 52% of ANLL patients. With regard to telomerase activity, MDS patients with different FAB subtypes showed large heterogeneity in their telomerase activity levels. Among MDS patients, the telomerase expression level was on the base line in patients belonging to RA and RARS subtypes and on a moderate level in patients belonging to RAEB subtype. But a significantly higher level of telomerase activity was observed on patients in patients with RAEB-t and CMML subtypes. Telomerase activity seems to be increased in MDS in comparison with normal samples and was further upregulated in ANLL patients. Even the initial telomerase activity was much higher in MDS patients who later progressed to ANLL.

The results clearly demonstrated that there could be a broad spectrum of karyotype abnormalities and heterogeneity in the telomerase activity in different FAB subtypes of MDS of and ANLL patients. Correlating these alternations with disease progression, survival and clinical outcome had given some clues on the prognostic significance of these genetic alterations.

In the present study, telomerase expression was found to be the most important predictive marker of leukaemic progression. In the overall survival of MDS patients, leukaemic progression was found to be the most independent predictive prognostic marker. Leukaemic progression significantly influenced the overall survival of MDS patients. Parameters found to be significant in the characterization of individual patients could be used for the accurate prediction of prognosis and survival in MDS patients. So it is reasonable to suggest that pretreatment status of telomerase expression level apart from karyotype abnormalities, could be considered as novel genetic determinants of prognosis and could be utilized in the routine work up of MDS and ANLL patients at diagnosis. These parameters could be incorporated in the risk assessment and clinical management of MDS and ANLL patients.

**Dr. Ravindran Ankathil**

Additional Professor

Division of Cancer Research, Regional Cancer Centre  
Thiruvananthapuram

**Cellular responses by a non-CT novel toxin of *Vibrio cholerae* W07**

The study was undertaken to elucidate the mechanisms by which the novel toxin from *V. cholerae* W07 strain could elicit secretory response in mice enterocytes.

The toxin was purified by a combination of sequential ammonium sulphate fractionation followed by gel filtration chromatography on superdex-200 HR 10/30 column in the FPLC system. The toxin was found to elute out just after the void volume with a retention time of 8.2 min. The homogeneity of the toxin was established by native alkaline slab PAGE as well as in isoelectrofocusing in which it revealed a single band of pI 5.2. The specific activity of the toxin increased to 600-fold with a recovery of 17.8%. The recovery was 1 mg of purified protein from one litre of crude culture. The  $M_r$  of the two subunits of the purified toxin was confirmed as 58 kDa and 40kDa as in SDS-PAGE. The purified WO7-toxin could cause detachment and rounding of the HEp-2 cells within 6-12 h. The ELISA titer of the IgG<sub>w</sub> separated from the anti-WO7-toxin sera by affinity chromatography on protein A-sepharose CL4B column was found to be 1:2500 with 2 µg of the purified toxin whereas the titer of the pre-immune sera under the same condition was <1:50. The IgG<sub>w</sub> could detect both the 58 kDa and 40 kDa subunits of the purified WO7-toxin in Western immunoblot. A significant increase in the intracellular calcium concentration [Ca<sup>2+</sup>] was observed in mice enterocytes triggered with the WO7-toxin. The GTPase activity was reduced in the WO7-toxin treated mice enterocytes which was found to be increased in presence of ouabain, a

non-specific inhibitor of GTPase. The WO7-toxin could also cause elevation in the adenylate cyclase dependent-cAMP levels in mice enterocytes. Further, the protein kinase C (PKC) activity in the toxin triggered enterocytes was also increased. A significant increase in the inositol triphosphate (IP<sub>3</sub>) level was also observed in the enterocytes triggered with WO7-toxin. An increase in the level of ROS and decrease in the level of antioxidant enzymes was found in the toxin stimulated enterocytes. The mRNA level showed decreased expression in the level of catalase, superoxide dismutase, glutathione peroxidase, glutathione reductase and glutathione-S-transferase enzymes as compared to the level of house keeping gene β-actin. A massive secretion of Cl<sup>-</sup> was noticed from the enterocytes under the effect of WO7-toxin. However, no absorption of Na<sup>+</sup>, rather its minor diffusion was observed under the same condition. Thus, it can be concluded that this novel toxin for epidemic isolate of *V. cholerae* W07, although distinct from commercial CT, shows some functional homology to the CT.

**Dr. Sujata Ghosh**

Department of Experimental Medicine  
and Biotechnology  
Postgraduate Institute of Medical  
Education and Research  
Chandigarh

**Efficacy of 5 fluorouracil and low molecular weight heparin in the reduction of proliferative vitreo-retinopathy vis-a-vis routine vitreoretinal surgery**

The study was carried out on 25 patients of retinal detachment associated with proliferative vitreo-retinopathy (PVR) C1 or more who were managed by vitreoretinal surgery. These eyes were subjected to broad buckling, three port pars-plana vitrectomy and vitreo-retinal surgery. The vitreous infusion consisted of 250 g/ml of 5-fluorouracil (FFU) and 1 IU/ml of low molecular weight heparin (LMWH). These cases were compared with 25 routine cases of vitreo-retinal (VR) surgery where in these agents were not used. All patients were followed up initially at 01 week interval for 01 month followed by monthly intervals up to three months and there after three monthly for a year.

All patients in both groups developed settled retina in the immediate post-operative period. At the end of fifteen months 20 patients (80%) of group 1 and 16 patients (64%) of group 2 had a settled retina with no PVR. In group 1, 18 (72%) patients had gained by one line in the Snellen's visual acuity at the end of fifteen months as compared to 03 (12%) patients in group 2. Retinal examination revealed the presence of PVR in 05 (20%) patients of group 1 compared to 09 (36%) patients of group 2 with the difference being statistically insignificant.

The study concluded that the addition of 250 g/ml of 5 fluorouracil and 1 IU/ml of low molecular weight heparin to the infusion fluid during vitreous surgery do not significantly improve the success rates to retinal re-attachment.

**Dr. Baswati Prasanth**

Col. Dr. V.S. Gurunadh  
Department of Ophthalmology  
Armed Forces Medical College  
Pune

## ICMR NEWS

The following meetings of various technical committees/groups of the Council were held in August 2010

### Meetings of the Task Forces (TFs)/Project Review Committees (PRCs) held at New Delhi

TF on Cognitive Impairment	:	August 2, 2010
PRC on Obesity and Metabolic Disorders	:	August 6, 2010
PRC on Cellular and Molecular Biology	:	August 20, 2010
PRC on Gastroenterology	:	August 26, 2010

### Meetings of Expert Groups (EGs)/Steering Committee and Other Meetings held at New Delhi

EG on Stem Cell Research and Therapy	:	August 19, 2010
Brain Storming Workshop on Pharmacogenomics of Proton Pump Inhibitors	:	August 21, 2010
Steering Committee to Review the Progress of Multicentric Project on Community Control of Thalassaemia and Sickle Cell Anaemia	:	August 30, 2010
EG on Breast Cancer	:	August 31, 2010

### Participation of ICMR Scientists in Scientific Events

Dr. G.B. Nair, Director, National Institute of Cholera and Enteric Diseases (NICED), Kolkata, participated in the International Life Sciences Institute North America (ILSINA) Symposium Series on Food Microbiology in connection with the International Association for Food Protection 97<sup>th</sup> Annual Meeting, at California (August 1-4, 2010).

Dr. Mamta Chawla Sarkar, Scientist C, NICED, Kolkata, participated in the IX International Rotavirus Symposium, at Johannesburg (August 2-3, 2010).

Dr. P. Jambulingam, Director, Vector Control Research Centre, Puducherry and Dr. K. Raghavendra, Scientist E, National Institute of Malaria Research (NIMR), New Delhi, participated in the WHO Peer Review Meeting to finalize the Manual on Vector Surveillance and Control in Complex Emergencies and Natural Disasters in South-East Asia Region, at Jakarta (August 9-13, 2010). Dr. Jambulingam also participated in the II IVM Working Group Meeting on Evidence-based Decision Making and Integrated Approach and Malaria–Lymphatic Filariasis Vector Control Meeting at Liverpool (August 23 and 24-25, 2010 respectively).

Dr. S. Ganguly, Scientist C, NICED, Kolkata, participated in the XII International Congress of Parasitology, at Melbourne (August 15-20, 2010).

Dr. K. Madhavan Nair, Scientist E, National Institute of Nutrition (NIN), Hyderabad, worked on Indo-US Collaborative Project on Bioavailability of iron and zinc in representative Indian and US diets/Enhancing dietary iron

and zinc bioavailability in Indian Children” at the laboratory of Prof. Steven Abram at Baylor College of Medicine, Houston (August 15-28, 2010).

Dr. Vidya Ramachandran, Scientist E, National Institute of Epidemiology, Chennai, participated in the Management of International Public Health Programme at Gabornone (August 17–September 1, 2010).

Dr. N. Arunachalam, Scientist F, Centre for Research in Medical Entomology, Madurai, participated in the Eco Health 2010 Conference at London (August 18-20, 2010).

Dr. M.C. Mohanty, Scientist C, Enterovirus Research Centre, Mumbai, participated in the XIV International Congress of Immunology, at Kobe (August 22-27, 2010).

Dr. Jayanti Mullick, Scientist D and Dr. S.D. Pawar, Scientist B, National Institute of Virology (NIV), Pune, participated in the CDC Influenza Partners Meeting for Research and Other Activities at Human Animal Interface, at Georgia, Atlanta (August 23-24, 2010).

Dr. A.C. Mishra, Director, NIV, Pune, participated in the Regional Workshop on Monitoring of Drug Resistance in Influenza Viruses at Bangkok (August 23-28, 2010).

### Fellowship

Dr. Sathya Prakash M., Scientist B, Regional Medical Research Centre, Port Blair, proceeded to avail D-43 Post-doctoral Fellowship, offered by CCDC, Safdarjung Development Area, New Delhi for a period of 2 years (w.e.f. August 9, 2010).