The 27th Annual Convention of the IACR –

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The 27th Annual Convention of the IACR named IACRCON –2008 was held at the GCRI, Ahmedabad between the 7th and 9th February, 2008. It coincided with the celebrations of the silver jubilee of the Department of Cancer Biology of the GCRI and the birth centenary year of Dr. T B Patel, the Founder Director whose guidance and efforts have helped establish the Institute to its present stature. The Convention was spaced out between the first and the third day with a total of eight sessions covering various areas of Cancer research, basic and translational, with a global representation. The International Symposium on Frontiers in Functional Genomics between these two days was the high point of the Convention and featured talks on approaches and clinical trials applying latest technologies, to study, understand and treat Cancer.

Honorable **Shri Jayanarayan Vyas**, Health Minister of the state of Gujarat and dignitaries from the Health Ministry formally inaugurated IACRCON- 2008.

Dr. B C Das delivered his first Presidential Oration, making it his second, in the history of the Association. He spoke on Gene, Environment and Cancer and began with the profound statement that, "every ailment in humans, except trauma, has a genetic basis." And eruditely continued, to explain the important role of environment besides the genetic component in the manifestation of the disease, Cancer. The talk reiterated to the experts in the field that for understanding the biology as well as the treatment of the disease, a holistic approach with emphasis on the gene environment interaction is of utmost importance Finally, he introduced the relatively new discipline, Environmental Genomics and Prevention, in the context of Cancer. It was a very thought provoking talk which emphasized the fact that Cancer is a multifactorial disease, and so far, scientists have been focusing on the genetic and environment components in isolation, and it is time now for a convergent approach, like identifying new functional polymorphisms of genes that influence an individual's risk of developing cancer

The first session was on **Translational Research** chaired by **Dr. Vinay Puduvalli** [MDACC, USA] and **Dr. CFM Sier** [LUMC, The Netherlands]. There were four invited speakers and the talks spanned from targeted therapy to chemoprevention. **Dr. Jayaram Hiremagalur** [IUSM, USA] spoke on Targeted Chemo-Gene therapy for Colorectal Cancer with possibilities of a highly effective therapy with low toxicity. Colon Cancer is the third most common cause of death from cancer. There are several drugs available in the clinic, which inhibit the enzyme IMPDH and bring about cell death. One such drug is Tiazofurin, which is converted by the enzyme NMNAT to its active form TAD, a potent inhibitor of IMPDH resulting in cancer cell death. He spoke about preclinical studies carried out by over expressing NMNAT and specifically targeting this enzyme to the

colorectal cancer cells by virtue of the folate receptors, which are over expressed in cancer cells. Also, another aspect of this therapy described, was increasing the delivery of the drug, tiazofurin by encapsulation in folate-tethered liposomes. **Dr. Subbarayan Pochi** [Roswell Park Cancer Institute, USA] spoke on the use of Arsenic Trioxide (As_2O_3) as a chemosensitizer of 5FU. An effective agent used in many alternate medicinal systems As_2O_3 could overcome the chemoresistance that occurs with 5FU. 5 Fluoro Uracil is a major anti neoplastic agent used in treating many solid tumours. The drug competes with the natural substrate dUMP for the enzyme Thymidylate synthase in DNA synthesis thus eventually arresting cell growth. Due to the auto regulatory properties, TS levels increase in tumour cells resulting in chemoresistance. The observation that As_2O_3 reduces chemoresistance by lowering the levels of TS in cultured human colorectal cell lines in vitro and that As_2O_3 transiently reduced TS expression in the PBMC of patients led to several cell proliferation assays to test the cytotoxic effects of As_2O_3 .On the basis of the in-vitro studies a Phase I clinical trial for As_2O_3 along with the 5FU regimen was initiated and data showed that 0.15mg/kg of As_2O_3 and 2600mg/ $m^2$of 5-FU regimen was safe. The results showed that As_2O_3 effectively suppressed TS level by 70% to80%. A very relevant and important question that came up during the discussion was about the mechanism of the down regulation of TS. Mechanistic studies delineating the down regulation of the enzyme can be carried out.

Dr U. Manne [UAB, USA] spoke on 'Molecular Advances in Colorectal Cancer with the need to Educate Researchers and Clinicians for improved Patient Care'. In his talk, he spoke of the importance of p53 as a predictor of survival with importance to the location of the tumour either proximal colon, distal colon or rectum and the ethnicity of the patient. Gene sequencing analyses of p53 revealed that the proximal tumours in Caucasians exhibited a higher incidence of missense point –mutations in the DNA binding domains of p53 than tumours from other locations in Caucasians and tumours from all anatomic sites from African-American population. With examples of differences in SNP of p53, decreased expression of Bcl-2, increased expression of p27 in different patient ethnicity and the prognosis of the disease he emphasized that understanding differences in patient race/ethnicity, tumour location with molecular, clinical and pathologic factors will facilitate personalized medicine.

The last talk of the session was delivered by **Dr. Buttar** [Mayo Clinic & Mayo Foundation, USA] on GI Cancer Chemo prevention and he elaborated on the need for a well-defined chemoprevention strategy to reduce the anticipated burden of GI cancers in the developing as well as the developed countries of the world.

During the lunch hour, posters for the IACR Poster awards, **Rajnikant Baxi** and **Rambhau Kulkarni**, and the non –award posters [1-32] were viewed. The award posters were displayed for all the three days.

Post lunch there were two simultaneous sessions, **Cytogenetics and Cancer** chaired by **Dr. Siddharth Adhvaryu** [USA] and **Dr. Thomas Liehr** [Germany] and **Cell Signaling and Cancer** chaired by **Dr. Shubhada Chiplunkar** [India] and **Dr. Bharat Joshi** [USA]

The session on **Cytogenetics and Cancer** began with the talk on 'Genetic Testing for Hereditary Colorectal Cancer: Current Status and Future Direction' by **Dr. Patrick Lynch** [MDACC, USA]. He spoke about the necessity of genetic testing for determining

the basis and improving management of the disease, even though the percentage constituting both the FAP and HNPCC due to heredity is small. Mentioned limitations of APC testing in India, and probably overcoming these by developing Reference labs for APC testing.

Dr. Stefan Bohlander [University of Munich, Germany] gave a talk entitled' Defining an 86-Probe Set Gene Expression Signature Predicting Survival in Acute Myeloid Leukaemia with Normal Karyotype'. He described survival of AML patients according to Cytogenetic subgroups. The subgroups described were AML-M2, AML-M3 and AML-M4. Also looked at AML patients with submicroscopic mutation. Developed a survival specific gene signature of patients with AML and submicroscopic mutation and looked at Relapse free survival and Overall survival. The 86-probe set correlated with Overall survival and some of the top ranking genes identified in the study were SOCS2, KIAA0125, GUCYIA3, GPR5, GPR6. The 86-probe set corresponds to a 66-gene signature. Groups in other continents have validated this signature.

Dr. CK Panda [Chittranjan National Cancer Institute, India] spoke on candidate tumour suppressor genes identified by association with the development of early dysplastic lesions of head and neck. Candidate genes like LIMD1, LTF, CACNA2D2, which were identified by deletion mapping and promoter hypermethylation analysis and their alterations and association with development of moderate dysplastic lesions, progression of the disease and the disease outcome was discussed.

The session on **Cell Signaling and Cancer** began with the talk by **Dr. Ajit Verma** [Univ. of Wisconsin, USA] on Protein Kinase C epsilon being a master switch in the induction and progression of Human cancers. PKC interacts with Stat 3.The physical interaction was shown in various human cancer cell lines using reciprocal immunoprecipitation and blotting experiments. PKC activates Stat3, which is linked to induction, progression and invasion of human cancers. PKC and Stat3 may be potential molecular targets for the prevention and treatment of various human cancers. The second talk by **Dr. Gopal Kundu** [NCCS, India] was on the diagnostic and therapeutic significance of Osteopontin. His group has shown, with in-vitro studies and in animal models, that Osteopontin regulates a series of signaling cascades through activation of various kinases and transcription factors that lead to changes in expression of genes important for angiogenesis and tumour progression. They have shown that OPN is expressed in several tumour types and the level of expression could be correlated to the staging of the tumours in breast and prostate cancers, thus opening the possibility of a targeted therapeutic approach.

Poster viewing, which began during lunch continued over tea and the interaction and scientific discussion, was stimulating and refreshing.

Finally for the day, there were two simultaneous sessions; **Molecular Mechanisms of Carcinogenesis** chaired by **Dr. P. Kondaiah** [IISc, India] and **Dr. Rakesh Singh** [UNMC, USA] and **Tumour Biology** chaired by **Dr. Surekha Zingde** [ACTREC, India] and **Dr. Rita Mulherkar** [ACTREC, India].

The session on **Molecular Mechanisms of Carcinogenesis** commenced with the talk by **Dr. Vinay Puduvalli** [MDACC, USA] on Multidisciplinary Clinical and Translational Research in Glioma. The treatment of any tumour would necessitate the understanding of the biology of the tumour. In the context of Gliomas, which has a grim prognosis, the targets could be proliferation, angiogenesis, invasion, genetic alterations, resistance to cell death and drug resistance. Discussed systemic therapies using EGFR, VEGFR and MMP inhibitors. Also, Chemo radiation therapy with temozolomide in the context of MGMT promoter methylation, which resulted in improved survival for a subset of patients with glioblastoma. He spoke of simultaneous targeting of multiple pathways and strategies to develop a novel trial design. As there are non-responders to any therapy, complementing the clinical strategies, studies on genetic and epigenetic regulation of gliomagenesis, identification of genetic signatures that correlate with prognosis and characterization of stem –like cells in gliomas is also being done. **Dr. Subrata Sinha** [AIIMS, India] gave a talk entitled, "Genomic instability in Glial tumours: Global changes versus Phenotypic Selection" and discussed studies carried out on high and low grade primary human glial tumours, both for molecular indicators of generalized instability as well as locus specific changes that influence the tumour phenotype Dr**. Vijay Kumar** [ICGEB, India] spoke on "Cyclin D1 is a mediator of cell cycle arrest induced by genotoxic agents" and presented data showing that hydroxyurea brought about growth arrest by destabilization of cyclinD1 in addition to being a ribonucleotide reductase inhibitor. The antimetabolite, hydroxyurea induced degradation of cyclin D1, which was by virtue of its phosphorylation at Thr286 by GSK –3 beta. Inhibition of GSK-3 beta or the over expression of the mutant form of cyclin D1 conferred stability to cyclin D1.Also, the over expression of the mutant cyclin D1 could compensate for the growth arrest induced by hydroxyurea. These conditions also resulted in a rapid inactivation of the enzyme Akt and the expression of its constitutively active form could overcome the growth arrest induced by hydroxyurea and stabilize cyclin D1. **Dr. Vijay Laksmi Kumar** [AIIMS, India] gave a talk entitled "Immunoreactive Estrogen Receptor and its E-Domain Variants in Breast Cancer". She presented data from a clinical study in which the Estrogen receptor level was determined in breast tissue samples by ELISA and analysis for splice variants of hormone binding was carried out by RT-PCR and showed that the estimation of ER levels combined with composite analysis of ER variants may be a better prognostic marker for breast cancer.

The session on **Tumour Biology** began with the talk by **Dr. Kishore Amin** [ACTREC, India] entitled, "Interleukin-8 Expression in Urine of Patients with Superficial Bladder Cancer after BCG Instillation: Mechanism of Action" The next talk by **Dr. Bidhut Roy** [ISI, India] entitled "Mitochondrial DNA Polymorphisms and Mutations in Oral Cancer and Leukoplakia" dealt with analysis of data obtained from a population based study on polymorphisms and mutations in mitochondrial DNA and included a large cohort of controls, oral cancer patients and individuals with leukoplakia. The genotyping of the samples was done with four mitochondrial loci; two U- haplogroup markers and one each of N and M haplogroup marker. The N and M markers were marginally whereas one of the U markers was significantly over represented in cancer. This over representation was more pronounced among smokers and not found among tobacco chewers. Also, the 4977bp deletion was observed in leukoplakia whereas the D-loop mutations were

detectable only in cancer tissues suggesting that 4977bp deletion is an early event while the D-loop mutation is a late event in carcinogenesis. The last talk of the session was by **Dr. T. S. Ganesan** [Amrita Institute of Medical Sciences & Research Centre, India] entitled,"RPS6KA2, A putative tumour suppressor gene at 6q27 in Sporadic Epithelial Ovarian Cancer".

The second day of the Convention saw the **International Symposium on Frontiers in Functional Genomics**. The first session was chaired by **Dr. Pankaj Shah** [GCRI, India] and **Dr. BC Das** [ICPO, India]. The keynote Lecture was delivered by Dr. Martine Piccart [Jules Bordet Institute, Belgium] with a very reflective title 'Translational Research: The Rosetta stone of Breast Cancer'. She emphasized on the importance and need of Translational Research to offer personalized therapy and presented micro array data from different groups, which showed that breast cancers could be grouped to at least 4 composite expression profiles: basal-subtype, erbB2 subtype, luminal B and A subtypes. The new genomic grade index developed would allow tailored clinical trials and probably lead to the discovery of new relevant drug targets. The development of multi-gene prognostic signatures and multi-gene predictive signatures would ultimately lead to improved disease management and better patient care which is the major goal for clinicians as well as cancer researchers. The next talk by **Dr. Nees Mattthias** [VTT Medical Biotechnology, Finland] was entitled, "Canceromics: Functional Insights by Integration of Genomic Technologies" and deliberated on the large microarray data flood that has contributed immensely to the understanding of malignant diseases and to some extent allowed outcome predictions and prognosis. The emphasis of the talk was that the vast data generated should be utilized to develop new drug targets and therapies, understand the pathways and altered mechanisms in Cancer to achieve improved therapeutic strategies. The next talk entitled, "Structural Genomics: The ultimate approach for rational drug discovery and support for functional genomics." was by **Dr. Lundstrom Kenneth** [KL International Bio Consulting, Switzerland]. He described the value of the structural information of a protein and that this could be used for improved drug potency, reduction in side effects and can be obtained from information deposited in public databases. There are structures of 200 membrane proteins and 35,000 soluble proteins available. The tools required are Bioinformatics, clones that are commercially available, but the low success rate for structure determination of membrane proteins is due to difficulties in the areas of over expression, purification and crystallization of recombinant proteins. The next talk was by **Dr. Sharon Ross** [NCI, USA] on, "Nutritional Genomic Approaches to Cancer Prevention". It was an interesting talk on nutrigenomics, and the interplay between genes and diet could possibly identify modifiable molecular targets for preventing, delaying or reducing the symptoms of cancer and other chronic diseases.

Posters 33-64 were viewed along with the mid-morning coffee break. They were displayed through the day and were discussed by the participants during the other breaks too.

The **Functional Genomics Session II** chaired by **Dr. Kenneth Lundstrom** [KL Int., Switzerland] and **Dr. Sharon Ross** [NCI,USA] began after the mid–morning coffee

break with the talk on, "Principles of Micro array Analysis" by **Dr. Wiltgen Marco**. [Medical University of Graz, Austria]. He discussed the technique and the methods of analyzing the vast data that is available from a micro array and also the possible applications of this technique. This was followed by a talk on "Signaling Networks in Breast Cancer –New Targets for Hormone Therapy" by **Dr. Adriana Stoica** [Lombardi Cancer Center, USA] She discussed theMCF-7/Akt1 breast cancer model that was developed earlier and now used to identify patterns of genes regulated by estradiol and Akt1 in the presence or absence of antiestrogens and AG 825. From the data generated and using a software program, two molecular signaling networks with estrogen and Akt1 regulated genes downstream of ErbB2 have been constructed. These newly identified genes may provide new therapeutic targets and / or predictive clinical markers.

Dr. P. Kondaiah [IISc, India] delivered a talk on, "Use of Microarrays to identify Glioma Biomarkers with Prognostic and Therapeutic Value". He presented micro array data on astrocytomas of different grades and showed that there are several novel genes, which are differentially expressed between the lower grades [II/III] and glioblastoma multiforme [GBM, Grade IV]. Several genes of the Notch signaling pathway were found to be differentially expressed. IGFBP2, FABP were over expressed in GBM. GADD45 alpha was shown to be a prognostic marker. Similarly, NMPRTase was shown to be over expressed in GBM and could be a potential serum marker. He further assessed it for a prognostic marker, with poor prognosis when over expressed, but the data was not significant. The information generated could form a basis for building diagnostic/prognostic gene signatures in glioma progression and novel therapeutic targets.

In the same session **Dr. Bhavana Dave** [UNMC, USA] spoke on the use of molecular cytogenetics, and techniques like FISH, multicolor FISH and array CGH for detection and screening of chromosomal alterations in lymphomas, in her talk "Cytogenetics to Genomics: Approaches in Lymphoma Diagnosis and Research". She also reiterated the importance and the necessity of techniques like aCGH especially in identifying and distinguishing between Burkitts and high-grade Diffuse Large B cell Lymphomas for treatment and better clinical management.

It was a day devoted to **Functional Genomics** and post lunch **Session III** was chaired by **Dr. Nees Matthias** [VTT Medical Technology, Finland] and **Dr. Marco Wiltgen** [Medical University of Graz, Austria].

Dr. Franz Bosch [University of Heidelberg, Germany] began with the talk entitled "Towards Proteomics based Classification of Head and Neck and Oral Cancer". He spoke about the SELDI-TOF MS as an alternate fast and high throughput proteomics platform and its usefulness for tissue protein profiling. Data generated from analyses of large collections of biopsies of healthy squamous mucosa, tumour surrounding mucosa and HNSCC/OSCC was discussed. Several candidate biomarkers like S-100 proteins, the cysteine proteinase inhibitors and defensins have been identified by mass spectrometry and alterations in expression were confirmed by cDNA micro array analysis and validated by immunohistochemistry using tissue micro arrays.

The next talk by **Dr. Surekha Zingde** [ACTREC, India] was on 'Tissue and Immunoproteomic Approaches for Oral Cancer' wherein she discussed the 2DE-MS approach used to study the differential protein expression from micro-dissected tumour

and normal tissue of the gingivo- buccal complex.14-3-3 protein has come up as one of the key differentiator molecule in the transformed epithelium and could be a potential therapeutic target.
In the same session, **Dr. Thomas Liehr** [Inst. Of Human Genetics and Anthropology, Germany] spoke on Molecular Cytogenetics in Tumour cells and emphasized on the importance of cytogenetic analyses with FISH and mFISH in studying chromosomal aberrations and rearrangements in cancer research.
The last talk of the session as well as the one-day symposium was on the 'Prognostic value of Matrix Metalloproteinases in Gastro-Intestinal Neoplasia' by **Dr. CFM Sier** [LUMC, Netherlands] where he discussed the detection of MMPs for prognostic purposes with reference to colorectal neoplasia.

The last session of the day which most of the younger participants were looking forward to, was the **IACR Oral Award Presentation** chaired by **Dr. Asok Antony** [RLRVAMC, USA] and **Dr. Nishigandha Naik** [Nicholas Piramal Research Centre,`India]. There were twelve contestants below the age of 30 years from institutions across the country, for the **Sitaram Joglekar award** and the **Mangala Bamne award**, who made excellent presentations on subject areas ranging from epigenetics, apoptosis, and immunoproteomics to chemoprevention in Cancer research. The enthusiasm and the competence were very much appreciated by the accomplished audience.

On the third and final day of the conference there were three scientific sessions. The day began with the session on **Clinical Cancer Research** chaired by **Dr. Kirti M. Patel** [GCRI, India] and **Dr. Yogeshwar Shukla** [ITRC, India]. The Keynote lecture by **Dr. Shilin Shukla** [GCRI, India] on the, "GCRI Research Wing Perspectives", introduced the various research activities carried out in the Institute, its strengths, and the focus of activity in the immediate and near future. It was a good overview of the quantity and quality of scientific pursuit by the various investigators at the GCRI, in the thrust areas of cancer research.
Dr. Sharmila Bapat [NCCS, Pune] spoke on," Ovarian Cancer Stem Cell Biology". It was a much 'awaited' talk, as the present attraction and interest for most cancer researchers is the area of cancer stem cells. She spoke of the ovarian stem cell model system established, the different clones identified and the availability of this tool to study cancer stem cells and identify disruption of the normal stem cell regulation during cancer. Discussed the mitochondrial DNA profile of the clones and the clones isolated involved in endothelial vasculature. With the endothelial lineage marker, V-cadherin, showed a re-association of endothelial cells with the tumour cells, basically identifying a novel mechanism of mediation of long-term angiogenesis employed by CSCs towards ensuring tumour survival. Epigenetic regulation of self-renewal and differentiation in Cancer stem cells and that bivalent histone marks regulate a transcriptional plasticity was also discussed.
Dr. Rita Mulherkar [ACTREC, India] gave a talk entitled "Strategies and Vectors for Cancer Gene Therapy: Preclinical Studies at ACTREC". She discussed the prodrug activation strategy using Herpes simplex virus – thymidine kinase and ganclicovir, in a xenograft nude mouse model, developed in her lab, for head and neck squamous cell

carcinoma [HNSCC] and the preclinical studies done to treat head and neck squamous cell carcinomas with this strategy, administered using viral vectors. The use of the combination gene therapy approach of HSV-tk and IL-2 to bring about enhanced tumour cell kill and the use of shRNA to silence genes like cyclin D1 and ATM with the ultimate aim of sensitizing HNSCC tumours to conventional therapy was also lucidly discussed. The proof of the pudding would be when these studies are translated into the clinic and benefit patients who are otherwise untreatable by conventional therapy.

The session on HPV and Neoplasia was chaired by **Dr. Sudhir Krishna** [NCBS, India]. **Dr. Antony Asok** [RLRVAMC, USA] began the session with his talk entitled "Homocysteine –derivatized heterogeneous nuclear ribonucleoprotein –E1 profoundly inhibits both HPV-16 Viral capsid proteins via multiple mechanisms" The talk covered aspects of nutritional deficiencies of folate and vit B12 which have been implicated in HPV infection and pathogenesis of cervical cancer, but as yet, little understood. There are several reports in literature, which describe folate and vitamin deficiency as a risk factor in HPV infection and cervical cancer, But this talk opened up another interesting aspect of folate deficiency, and that is the inability of the infectious viral particle to form due to accumulation of homocysteine and the concomitant inibition of the viral capsid proteins.
Dr. Sudhir Krishna [NCBS, India] spoke about Identifying and characterizing 'Putative Cancer' stem cells and their signaling properties. He reviewed the cancer stem cell hypothesis, the sphere formation assay that has been classically used to identify stem like cells in culture, and which was also used to identify cancer stem cells. Some of the points that were reiterated were of the marker CD24+ being associated with breast cancer stem cells, and its reduction after cancer chemotherapy, the heterogenous expression of CD133 in cell lines, and that 'Notch signaling' could also be an important marker for human cervical cancers.
Dr. Mausumi Bharadwaj [ICPO, India] presented preliminary data relating to the genetic polymorphism of HLA in HPV mediated cervical cancer in Indian women. Her study has revealed that SNPs at -308 G/A and -863 C/A loci of TNF α promoter as well as + 252A/G locus of LTA along with DRB1*15/DQB1*03 region of HLA may play a role in cervical carcinogenesis.

The last session of the conference on, **Signal Transduction and Cancer** was chaired by **Dr. Asok Antony**[RLRVAMC, USA] and **Dr. Franz Bosch** [University of Heidelberg, Germany]. The session opened with the talk, "Semaphorin 5a, an axonal regulator, with potential role in tumour angiogenesis, growth and metastasis" by **Dr. Rakesh Singh** [UNMC, USA]. He presented findings which predicted that Semaphorin 5A is a metastasis associated molecule in pancreatic cancer by performing sequence and expression database analysis using peptides screened from in vivo phage display peptide library and also developed a searchable mammalian cell adhesion molecule database for the identification of Semaphorin 5A. Further, hypothesized that Semaphorin 5A is involved in pancreatic tumour progression and metastasis. Their observations were that metastatic pancreatic cancers express Semaphorin 5A.It was expressed on cell- cell junctions and membrane. All pancreatic tumours express Sem5A irrespective of their differentiation status. Over expression leads to an increased invasive potential. Also observed that secreted [Panc1 cells] Semaphorin 5A enhances the endothelial cell

proliferation and survival of endothelial cells, has in-vivo angiogenic activity, a functional role in epithelial –mesenchymal transition, and mesenchymal epithelial transition as well, which occurs for establishment of tumours in distant organ microenvironment. So with their studies on Semaphorin 5A, they have been able to assign a bi-functional status of an enhancer and a repressor of tumour progression and metastasis, and explore its potential as a marker as well as a therapeutic target for pancreatic cancer.

Dr. Bharvin Patel [Eli Lilly,USA] spoke about "New drugs and Biomarkers in Clinical Development". Presented examples of some drugs that have been developed to target key molecules involved in tumour growth and survival. Described Enzastaurin, which has been taken into a phase III trial by the company for the treatment of relapsed glioblastoma multiforme [GBM]. Added that Enzastaurin has been shown to suppress signaling through the PKC β and PI 3 kinase/AKT pathways. It has also been shown to inhibit angiogenesis by the rat corneal micropocket assay and bring down the GSK3β levels. Mentioned other drugs like Gemzar and Alimta, both antimetabolites that are used in combination with other drugs in treatment of various cancers. The other highlights of the talk were about an inhibitor developed to the TGF-β receptor, which is highly specific and does not bind to PDGF or bFGF receptor and also survivin.

Dr. Shubhada Chiplunkar [ACTREC, India] gave a talk entitled," Mechanisms of CD3 Down- Regulation in Patients with Oral Cancer". She discussed Immunoediting and how the tumour brings about changes in the T cell signaling molecule. Spoke about their observations that lymphocyte infiltration in oral cancers is good, but the cells don't seem to be equipped to kill tumour cells and also the TILs undergo apoptosis. Stage III and IV showed lower expression of zeta, internalization of zeta, lower protein levels and no Zap 70 degradation. Recycling of zeta is impaired, remains internalized in oral cancers. There are no changes in biosynthesis of zeta in oral cancers and studies are in progress to characterize the tumour-derived factor responsible for the degradation of CD3 chain expression in oral cancer. Emphasized that a posttranslational defect is predominant in the peripheral blood lymphocytes, while a transcriptional defect is responsible for the decreased CD3 chain expression in the tumour compartment.

The last talk of the conference and the day was by **Dr. Nishigandha Naik** [Piramal Life Sciences Ltd, India] on "Role of Formyl Peptide Receptors in Breast Cancer Cells" She introduced Formyl peptide receptors and their functions in injury and infection and emphasized that scientific literature shows that these receptors are present on non-haematopoietic cells, which led to her work of exploring the possibility of its expression on cells of epithelial origin, like breast cancer. Several cell lines were studied and the findings showed that breast cancer cells express FPR and also that FPR may play a role in regulation of cell growth and cell motility by stimulating multiple signaling pathways.

The Convention concluded with the 'Valedictory Function' conducted by the Organizing Secretary, **Dr. Sunil Trivedi,** with the gracious presence of the members from the Organizing and the IACR Committee. The invited speakers and participants of the conference were acknowledged for making the meeting a scientifically stimulating experience. The office bearers as well as the volunteers were profusely thanked for their efforts and enthusiasm. During the formalities, the younger participants seemed impatient for the announcement of the IACR awards for the oral and the poster presentations,

which always evokes fulfillment or inspiration. The **IACR, Sitaram Joglekar** award for one of the best oral presentations went to **Miss. Triparna Sen** [CNCI, Kolkata, India] for her talk entitled," Effect of Green Tea Polyphenol-EGCG on the expression and activity of MMP-2 in human breast cancer cell line MCF-7". The **IACR Mangala Bamane** award for one of the best oral presentations was bagged by **Mr. Rohit Upadhyaya**[SGPGIMS, Lucknow, India] for his presentation entitled, "Functional Polymorphisms of Cyclooxygenase –2 gene and risk for esophageal cancer". The **IACR Rajnikant Baxi** award for one of the best poster presentations was given to **Miss. Toral Kobawala** [GCRI, India] for her poster entitled," Molecular alterations in oral carcinogenesis: Significant risk Predictors in malignant transformation and tumour progression". The **IACR Rambhau Kulkarni** award for one of the best poster presentations went to **Mr. Nallala Krupakar** [ACTREC, India] for his poster entitled," Genetic predisposition to multiple primary neoplasms–High throughput analysis of SNP's using SnaPshot." The Organizers of the Convention had announced prizes for the non – awards section of the poster presentation and this prize was bagged by **Mr. Ganesh Joshi** [ACTREC, India] for his poster entitled, "HDAC inhibitor Valproic acid enhances the Adenovirus mediated Transgene Expression"
The best essays, in the competition held by the IACR earlier last year, were of **Miss. Toral Kobawala** [GCRI, India] and **Mr. Harshit Kumar Soni** [NCL, Pune, India].

It was on this very encouraging and positive note that the Convention came to an end with participants hoping to come with and present interesting and excitng science next year.