

Admission in Biotechnology (M.Sc) and Genetics (M.Sc) is going on

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Vision

TO GROW AS A CENTRE OF EXCELLENCE IN THE FIELD OF
PHARMACEUTICAL AND BIOLOGICAL SCIENCE



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**GURU NANAK INSTITUTE OF PHARMACEUTICAL SCIENCE AND
TECHNOLOGY**

12-07-2013

MESSAGE FROM GNIPST

GNIPST BULLETIN is the official publication of Guru Nanak Institute of Pharmaceutical Science & Technology. All the members of GNIPST are proud to publish the 27th Volume of “GNIPST BULLETIN”. Over the last two years this bulletin updating readers with different scientific, cultural or sports activities of this prestigious institute and promoting knowledge of recent development in Pharmaceutical and Biological Sciences. Student’s section is informing readers about some curious facts of drug discovery, science, sports and other relevant fields. We look forward to seeing your submission and welcome comments and ideas you may have.

LETTER TO THE EDITOR.

NEWS UPDATE

△ **New class of highly potent antimalarial compounds discovered** (9th July, 2013)

Researchers at the Instituto de Medicina Molecular (IMM), in Lisbon, Portugal, have discovered a new class of highly potent antimalarial compounds. These compounds, referred to as Torins, were originally developed by researchers in the Boston, MA to inhibit a key human protein involved in cell growth, mTOR, and have been shown to be effective anticancer agents in rodent models. Torins are extremely effective multistage antimalarials; Torins appear to have a novel activity against the Plasmodium parasites themselves, distinct from both currently used malaria

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therapeutics and from their ability to target human mTOR. [Read more](#)

△ **Inhibiting macrophage MerTK signaling creates an innate immune response against cancer** (8th July, 2013)

New evidence by a University of North Carolina-led team shows that MerTK macrophage action in the microenvironment that surrounds cancer cells blunts the immune response, allowing the tumor cell to grow and metastasize. Their work determined that MerTK absence increased the anti-tumor response and slowed the growth and spread of model breast, colon and skin cancers. [Read more](#)

△ **Biomarker that could track Huntington's Disease progression** (8th July, 2013)

A team of SRI International researchers has demonstrated that measurements of electrical activity in the brains of mouse models of Huntington's disease could indicate the presence of disease before the onset of major symptoms. [Read more](#)

△ **Bacteria communicate to help each other resist antibiotics** (4th July, 2013)

New research from Western University unravels a novel means of communication that allows bacteria such as *Burkholderia cenocepacia* (*B. cenocepacia*) to resist antibiotic treatment. These findings reveal a new mechanism of antimicrobial resistance based on chemical communication among bacterial cells by small

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molecules that protect against the effect of antibiotics. [Read more](#)

△ **Biomarker predicts heart attack risk based on response to aspirin therapy**

(4th July, 2013)

Researchers at Duke Medicine have developed a blood-based test of gene activity that has been shown to accurately identify who will respond to the aspirin therapy. The new gene expression profile not only measures the effectiveness of aspirin, but also serves as a strong predictor of patients who are at risk for heart attack. [Read more](#)

△ **Contaminated Ultrasound Gel tied to outbreak of healthcare-associated infections**

(9th July, 2013)

Investigators at Beaumont Health System near Detroit, Michigan determined contaminated ultrasound gel was the source of bacteria causing the healthcare associated infection. The findings emphasize the need for increased scrutiny of contaminated medical products. [Read more](#)

△ **Bird Vaccine for West Nile Virus** (4th July, 2013)

University of British Columbia researchers have developed a vaccine that may halt the spread of West Nile Virus (WNV) among common and endangered bird species. [Read more](#)

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△ The 'Gold' Standard: a rapid, cheap method of detecting dengue virus (4th July, 2013)

The development of an easy to use, low cost method of detecting dengue virus in mosquitoes based on gold nanoparticles is reported in BioMed Central's open access journal *Virology Journal*. The assay is able to detect lower levels of the virus than current tests, and is easy to transport and use in remote regions. The development of an easy to use, low cost method of detecting dengue virus in mosquitoes based on gold nanoparticles is reported in BioMed Central's open access journal *Virology Journal*. The assay is able to detect lower levels of the virus than current tests, and is easy to transport and use in remote regions. [Read more](#)

HEALTH AWARENESS

Fluorides-a double edge sword

Fluorine is the lightest halogen and the compounds of fluorine are generally considered as fluorides. These fluorides and fluorine are very essential components for glass, polymers, pharmaceuticals and many more chemical industries. Like other elements fluorides also have some definite clinical impact on human health.

Fluoride intake has both beneficial effects, in reducing the incidence of dental caries and detrimental effects, in causing tooth enamel and skeletal fluorosis following prolonged exposure to high concentrations.

It is essential to provide sufficient fluoride intake in areas where this is lacking, so as to minimize tooth decay. This can be done through drinking water fluoridation or, when this is not possible, through salt

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or milk fluoridation. Excessive fluoride intake usually occurs through the consumption of groundwater naturally rich in fluoride or crops that take up fluoride from high-fluoride irrigation water. In these areas, means should be sought to manage intakes by providing drinking water with a moderate (i.e. safe) fluoride level or using alternative sources of water for irrigation.

Source of fluoride exposure:

- Natural activities, such as volcanic emissions, weathering of minerals and dissolution, particularly into groundwater and marine aerosols.
- Human activities, such as the production of phosphate fertilizers, the manufacture and use of hydrofluoric acid, the production of aluminium, steel and oil, and the burning of fluoride-rich coal, especially indoors
- Remobilization of historic sources, such as water flow and sediment movement from aluminium production plants.
- Toothpaste (if swallowed by young children).
- Drinking water in fluoridated communities. Water fluoridation has been adopted by several countries as a cost-effective public health measure for the prevention of dental caries. The dental health benefits are obtained when the concentration of fluoride in drinking water is 0.8-1.0 mg/l.
- Beverages and food processed with fluoridated water.
- Dietary prescription supplements that include fluoride (e.g., tablets or drops).
- Other professional dental products (e.g., mouth rinses, gels, and foams).
- The use of fluoride-rich fuel (e.g. coal) for cooking can lead to fluoride intake from the cooked food, as well as inhalation exposure.

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Health effects

Beneficial effects of adequate fluoride

Fluoride is a micronutrient. Adequate intake has a beneficial effect on oral health in both children and adults. Fluoride prevents dental caries by following actions:

- When present in saliva constantly and at low concentrations, fluoride enhances the remineralization of tooth enamel lesions.
- Fluoride also interferes with glycolysis, the process by which cariogenic bacteria metabolize sugars to produce acid.
- It has a bactericidal action on cariogenic and other bacteria.
- It makes the enamel more resistant to later acid attacks.

Adverse effects of excess fluoride

- The toxic effects of high fluoride intake are due to the fact that it is a direct cellular poison, which binds calcium and interferes with the activity of proteolytic and glycolytic enzymes.
- Ingested fluoride reacts with gastric acid to produce hydrofluoric acid in the stomach. Thus, acute exposure to high concentrations of fluoride results in immediate effects: abdominal pain, excessive saliva, nausea and vomiting. Seizures and muscle spasms may also occur. Death due to respiratory paralysis is a possibility.
- The acute effects of inhalation of hydrogen fluoride are severe irritation of the respiratory tract, with coughing, choking and pulmonary oedema. Severe burns or prolonged visual defects may result from skin or eye contact. Inhalation or dermal exposure can be fatal.
- Repeated or prolonged exposure via inhalation of aluminium fluoride, primarily in occupational settings, may cause asthma.
- **Fluorosis:**

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The main effect of long-term ingestion or inhalation of high concentrations of fluoride is fluorosis. There are 2 types of fluorosis mainly observed.

Enamel fluorosis: It can develop only in children, as it results from intake of high levels of fluoride during the period of tooth development. It is characterized by the appearance of white areas in the enamel and in this form is considered an aesthetic issue. In the more severe form, reduced mineralization of the enamel results in stained and pitted teeth.

Skeletal fluorosis: Fluoride accumulates progressively in the bone over many years. Early symptoms include stiffness and pain in the joints. Crippling skeletal fluorosis is associated with **osteosclerosis, calcification of tendons and ligaments, and bone deformities.** There is an elevated risk of skeletal effects at fluoride intakes above 6 mg/day. These intake levels occur in many areas of the world because of naturally high fluoride levels in the groundwater, notably in the Rift Valley of East Africa and in China.

Remedies:

For adequate fluoride

Reduce the incidence of dental caries by:

- Fluoridating low-fluoride drinking water where possible, as well as considering alternatives, such as salt or milk fluoridation.
- Developing effective and affordable fluoridated toothpastes for use in developing countries.
- Promoting optimal oral hygiene, based on the use of effective fluoridated toothpaste.
- Advocating a low-sugar diet in accordance with the recommendations of WHO and the Food and Agriculture Organization of the United Nations (FAO) that free (added) sugars should not exceed 10% of

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energy intake and that food or drinks containing free sugars should be consumed no more than 4 times per day.

For Excess fluoride

- Carefully consider the causes of fluorosis to select the best and most appropriate means of dealing with excess fluoride exposure, taking into account the local conditions and sensitivities.
- Provide drinking-water with fluoride levels that do not produce adverse health effects, by: seeking alternative water sources in areas with fluoride-rich groundwater, particularly where water consumption is high due to elevated temperatures.
- Defluoridating water for drinking and cooking, using methods such as bone charcoal adsorption, contact precipitation, coagulation-flocculation, sedimentation using aluminium sulfate (Nalgonda process) and activated alumina adsorption.
- For very young children, less than 2 years old:

Do not use fluoride toothpaste unless advised to do so by your doctor or dentist. You should clean your child's teeth as soon as the first tooth appears by brushing without toothpaste with a small, soft-bristled toothbrush and plain water.

- Monitor fluoride levels in the environment, especially in areas where there is exposure to elevated fluoride levels due to human activities, and determine the overall exposure to fluoride.
- Encourage mothers to breastfeed, even in areas with high fluoride intake, as breast milk is optimal for infant health and usually low in fluoride.
- Discourage the use of fluoride-rich coal for cooking purposes.

World Health Organization (WHO) fluoride guideline values

- Drinking-water

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1.5 mg/l (WHO recommends that, in setting a standard, Member States should take into account drinking-water consumption)

- Air

1 $\mu\text{g}/\text{m}^3$ (to prevent effects on livestock and plants, as well as to protect human health)

For human health, fluorides are considered as double edge sword. Global and national level monitoring is essential for the estimation of the impact on human health.

DISEASE OUTBREAK NEWS

△ Middle East Respiratory Syndrome coronavirus (MERS-CoV) (7th July, 2013)

The Ministry of Health (MoH) in Saudi Arabia has announced one additional laboratory-confirmed case and two deaths in previously confirmed cases of Middle East respiratory syndrome coronavirus (MERS-CoV) infection in Saudi Arabia. [Read more](#)

FORTHCOMING EVENTS

△ The 2nd Pharm. Tech IAPST International Conference on "New insights into diseases and recent therapeutic approaches" from 17th to 19th January 2014 in Kolkata, India. [Read more](#)

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DRUGS UPDATES

△ FDA approves the first non-hormonal treatment for hot flashes associated with menopause (28th June)

The U.S. Food and Drug Administration approved Brisdelle (paroxetine) to treat moderate to severe hot flashes (vasomotor symptoms) associated with menopause. Brisdelle, which contains the selective serotonin reuptake inhibitor paroxetine mesylate, is currently the only non-hormonal treatment for hot flashes approved by the FDA. [Read more](#)

CAMPUS NEWS

△ One day seminar cum teachers' development programme for school teachers on the theme of "Recent Trends of Life Sciences in Higher Education" organized by GNIPST held on 29th June, 2013 at GNIPST auditorium. The programme was inaugurated by Prof . Asit Guha, Director of JIS Group, Mr. U.S. Mukherjee, Dy Director of JIS Group and Dr. Abhijit Sengupta, Director cum Principal of GNIPST with lamp lighting. The programme started with an opening song performed by the B.Pharm students of this institute. The seminar consists of a series of lectures, video presentations and poster session. On the pre lunch session 4 lectures were given by Dr. Lopamudra Dutta, Mr. Debabrata Ghosh Dastidar, Ms. Swati Nandy and Ms. Tamalika Chakraborty respectively. On their presentation the speakers enlighten the recent development of Pharmacy, Genetics and Microbiology and their correlation with Life Sciences. On the post

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lunch session, Ms. Saini Setua and Ms. Sanchari Bhattacharjee explained the recent development and career opportunities in Biotechnology and Hospital Management. The programme was concluded with valedictory session and certificate distribution.

About 50 Higher secondary school teachers from different schools of Kolkata and North & South 24 Parganas district of West Bengal participated in this programme. A good interactive session between participants and speakers was observed in the seminar. The seminar was a great success with the effort of faculties, staffs and students of our Institute. It was a unique discussion platform for school teachers and professional of the emerging and newer branches of Life Science.

JOB OPPORTUNITY

There are some job opportunities in Cadell Pharmaceuticals, Kolkata in the Production unit. The interested B.Pharm. pass out students are requested to contact Mr. Anshuman Bhattacharya (9836070711) immediately.

△ The following B.Pharm. final year students have qualified, GPAT-2013. We congratulate them all.

Amanpreet Kaur, Mohua Das,

Sourav Bagchi, Uddipta Ghosh Dastidar,

Siddarth Shah, Prapti Chakraborty,

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SubhradipRoychoudhury, Soumyajit Das,

MounomukharBhattacharjee.

△GNIPST is now approved by AICTE and affiliated to WBUT for conducting the two years post graduate course (M.Pharm) in PHARMACEUTICS. The approved number of seat is 18.

■ STUDENTS' SECTION

❖ WHO CAN ANSWER FIRST????

- ✓ *Name of which mineral was derived from the Latin word for "flow"?*
- ✓ *Name of which drug molecule was derived from a French crime story Rififi?*

Answer of Previous Issue Question:

A) Dr. K. Anji Reddy B)Thevetia peruviana

- *Send your thoughts/ Quiz/Puzzles/games/write-ups or any other contributions for Students' Section& answers of this Section at gnipstbulletin@gmail.com*

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EDITOR'S NOTE

I am proud to publish the 1st issue of 27th Volume of **GNIPST BULLETIN**. GNIPST BULLETIN now connected globally through *facebook account 'GNIPST bulletin'*

I want to convey my thanks to all the GNIPST members and the readers for their valuable comments, encouragement & supports.

I am thankful to **Dr. Abhijit Sengupta**, Director of GNIPST and **Prof. Dipankar Chakraborty**, Registrar of GNIPST for their valuable advice and encouragement. Special thanks to **Dr. Prerona Saha** and **Mr. Debabrata Ghosh Dastidar** for their kind co-operation and technical supports.

An important part of the improvement of the bulletin is the contribution of the readers. You are invited to send in your write ups, notes, critiques or any kind of contribution for the forthcoming special and regular issue.

ARCHIVE

- The general body meeting of APTI, Bengal Branch has been conducted at GNIPST on 15th June, 2012. The program started with a nice presentation by Dr. Pulok Kr. Mukherjee, School of Natural Products, JU on the skill to write a good manuscript for publication in impact journals. It was followed by nearly two hour long discussion among more than thirty participants on different aspects of pharmacy education. Five nonmember participants applied for membership on that very day.

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- GNIPST is now approved by AICTE and affiliated to WBUT for conducting the two years' post graduate course (M.Pharm) in **PHARMACOLOGY**. The approved number of seat is 18.
- The number of seats in B.Pharm. has been increased from 60 to 120.
- 2nd World Congress on Ga-68 (Generators and Novel Radiopharmaceuticals), Molecular Imaging (PET/CT), Targeted Radionuclide Therapy, and Dosimetry (SWC-2013) : On the Way to Personalized Medicine

Dates 28 Feb 2013 → 02 Mar 2013

Location: Chandigarh, India. [Details](#).

- **AICTE has sanctioned a release of grant under Research Promotion Scheme (RPS) during the financial year 2012-13 to GNIPST** as per the details below:
 - a. *Beneficiary Institution:* Guru Nanak Institution of Pharmaceutical Science & Technology.
 - b. *Principal Investigator:* Dr. Lopamudra Dutta.
 - c. *Grant-in-aid sanctioned:* Rs. 16,25000/- only
 - d. *Approved duration:* 3 years
 - e. *Title of the project:* Screening and identification of potential medicinal plant of Purulia & Bankura districts of West Bengal with respect to diseases such as diabetes, rheumatism, Jaundice, hypertension and developing biotechnological tools for enhancing bioactive molecules in these plants.