

forementioned research as summarized in Figure 1. As access to the genome sequence is crucial for resolving prime issues in crop biology and studying the molecular mechanisms fortifying trait formation, the barley WGS data will be essential for the advancement of true genomics-informed breeding strategies and for deciphering the full potential of natural genetic variation towards the improvement of agronomic traits. The over-represented gene families of the barley genome need to be further characterized through transgene-based over-expression and knockout studies under diverse environmental conditions in order to impart stress tolerance. Moreover, the occurrence of about 15 million non-redundant single-nucleotide polymorphisms would assist in instigating genome-wide marker technology for high-resolution genetics

and genome-assisted breeding for stress tolerance⁴. Thus the barley genome sequence not only hastens the analysis of complex traits and enables novel traditional and next-generation marker-assisted selection approaches, it also serves as an imperative and robust framework for the improvement of novel strategies in cereal breeding.

1. Badr, A. *et al.*, *Mol. Biol. Evol.*, 2000, **17**, 499–510.
2. Harlan, J. R. and Zohary, D., *Science*, 1966, **153**, 1074–1080.
3. Food and Agriculture Organization of the United Nations., FAOSTAT 2011, <http://faostat3.fao.org/home/index.html#-VISUALIZE>
4. International Barley Genome Sequencing Consortium, *Nature*, 2012, **491**, 711–716.

5. Nevo, E., Fu, Y. B., Pavlicek, T., Khalifa, S., Tavasi, M. and Beiles, A., *Proc. Natl. Acad. Sci. USA*, 2012, **109**, 3412–3415.
6. Collins, H. M., Burton, R. A., Topping, D. L., Liao, M. L., Bacic, A. and Fincher, G. B., *Cereal Chem.*, 2010, **87**, 272–282.
7. Belcredi, N. B., Ergerová, J. E., Běláková, S. and Vaculová, K., *Czech. J. Food Sci.*, 2009, **27**, S242–S244.
8. Gamlath, J., Aldres, G. P. and Panozzo, J. F., *J. Cereal Sci.*, 2008, **47**, 365–371.
9. Graner, A. *et al.*, *Czech J. Genet. Plant Breed.*, 2005, **41**, 81–88.
10. Stein, N. *et al.*, *Theor. Appl. Genet.*, 2007, **114**, 823–839.

Mehanathan Muthamilarasan and **Manoj Prasad***, National Institute of Plant Genome Research, Aruna Asaf Ali Marg, New Delhi 110 067, India.
*e-mail: manoj_prasad@nipgr.ac.in

MEETING REPORT

Goals towards healthy ageing*

Ageing is a universal feature affecting most organisms. It is a gradual process which may cause disability in individuals depriving them of leading a normal life. Gerontologists worldwide are interested in finding ways to address diseases related to old age and help the elderly population lead a disability-free life. Several studies in humans and animals indicate that eating healthy and nutritious food with regular exercise can minimize the process of ageing. It may also help in prolonging one's lifespan. A need is being felt to address issues pertaining to biological, medical and socio-psychological aspects of ageing, as the elderly population is on a rise.

An International Symposium on Ageing and the 16th Biennial Conference of the Association of Gerontology (India)

*A report based on the International Symposium on Aging (ISOA-2012) and 16th Biennial Conference of the Association of Gerontology (India) organized by the Department of Biochemistry, North-Eastern Hill University, Shillong, during 1–3 October 2012.

(AGI) was organized to address the problems and prospects of the elderly in today's world. In his inaugural speech, Ramesh Sharma (President AGI and Chairman of the symposium) gave a brief on the theme of the symposium and paid tribute to the founder of AGI, Late M. S. Kanungo. A. N. Rai (Vice-Chancellor, North-Eastern Hill University, Shillong) presented the patron's remarks on issues related to ageing. Sataro Goto (Juntendo University Medical School, Tokyo, Japan) graced the occasion as the guest of honour.

Several papers pertaining to biological, medical and socio-psychological aspects of ageing were presented during many academic sessions. Poster presentations and panel discussions were also held during the meeting. Various issues related to ageing and problems of the aged were discussed. A few recommendations were also made: (i) studies on age-related diseases at cellular and molecular levels should be undertaken which may help in understanding the phenomenon of ageing; (ii) a financial and social

support system, like the Japanese model system should be followed for the welfare and maintenance of the elderly; (iii) the State and the Central Governments should support and advocate for the health of the elderly; (iv) greater emphasis should be given on research and use of nutraceutical or herbal and dietary therapies; (v) issues related to ageing must be incorporated in the curriculum or textbooks to sensitize the younger generation regarding the care of the elderly; (vi) ensure medical safety, including elderly-friendly gadgets; (vii) an urgent need was felt to set up a National Institute of Ageing to address and tackle age-related issues using a multi-disciplinary approach; (viii) the North East Council should establish a North East Regional Centre for Ageing Research for the welfare and management of the elderly in the NE states of India.

Ramesh Sharma* and **D. Syiem**, Department of Biochemistry, North-Eastern Hill University, Shillong 793 022, India.
*e-mail: shramesh@gmail.com