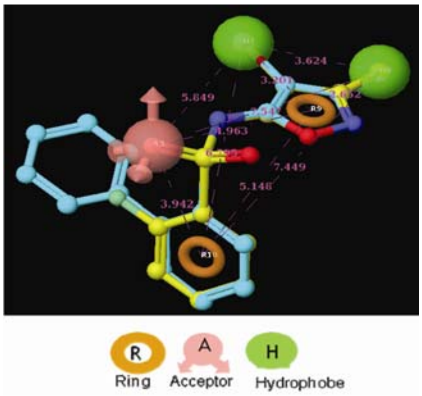
In this issue

Development of 3-D pharmacophore and 3D-QSAR models

Endothelin (ET) receptors are GPCRs whose activation results in elevation of intercellular-free calcium and potent endogenous vasoconstrictions. Because of its therapeutic importance as vasoconstrictors leading to high blood pressure, endothelin receptors had been an attractive therapeutic target of importance for



longtime. The design and development of endothelin antagonists like THELIN (sitaxsentan) for pulmonary arterial hypertension was based on ligand focused approaches by experimental and theoretical methods. Though the chemistry and biology of endothelin receptors is well known, three-dimensional structural features of these receptors have not been elucidated by X-ray crystallography. V. S. Babu *et al*. (**page 1847**) describe the development of 3-dimensional pharmacophore and 3D-QSAR models common to all active antagonists. A rationalization of the measured biological activities of active, weakly active and inactive antagonists is presented. The models developed for the receptor help to identify potential areas of selectivity in the hyperspace of 3-dimensional pharmacophores that led to the discovery of sitaxsentan and bosentan. The authors have used these 3-dimensional pharmacophore models in the enrichment and preliminary virtual screening studies. Active ET_A antagonists seeded in a random database of drug-like decoy molecules are recovered within the top 7% of the ranks based on pharmacophore alignment score. Such compounds could serve as templates for the design of next generation endothelin receptor antagonists as potential cardiovascular agents with fewer side effects. Additionally, they offer new avenues for the discovery of novel chemical scaffolds to develop endothelin receptor antagonists.

High-silica rhyolitic tuff breccia at the base of Paleogene Subathu Formation, NW Himalaya

A prominent unit of rhyolitic tuff breccia crops out unconformably between the Precambrian Sirban Limestone and the Paleogene Subathu Formation at Kalakot in Rajauri district of J&K. By virtue of stratigraphic position, it could have got emplaced any time between Precambrian and early Paleogene. To understand better its significance in regional geology and the stratigraphic relation with the Paleogene Subathu Formation, Siva Siddaiah investigates (**page 1875**) the field characters, mineralogy, textures and geochemistry of the rhyolitic tuff breccia at Kalakot and discusses its origin.

The rhyolitic tuff breccia is densely welded and contains dominantly of quartz as broken phenocrysts and as glassy matrix, in addition to minor amounts of sanidine, plagioclase, biotite and zircon. Quartz occurs in hexagonal dipyramidal form, and exhibits partially resorbed, skeletal and splintery features. It has high SiO_2, relatively high abundances of Zr, Y and ΣREE, and significantly low contents of Sr and Ba. Petrographic and geochemical data indicate a high-silica rhyolitic character for the Kalakot breccia.

Fly ash – 'waste' that can be utilized!

Fly ash is fine in nature and contributes significantly to environmental pollution. Despite being the fourth largest producer of coal ash, 80% of which is fly ash, India utilizes very little (3%) of the fly ash produced from coal-based thermal power plants. Annually, India produces 90 million tonnes of fly ash! There

are problems in disposal of this solid waste product, as it contains toxic heavy metals like Ni, Cd, Sb, As, Cr and Pb, and can be disposed off either in wet or dry state. Manas Ranjan Senapati (**page 1791)** describes how India could manage fly ash. Fly ash can be utilized in manufacturing bricks, cement, distemper, ceramics, and fertilizers and in road construction because of its properties. Environment and health effects of fly ash can be averted if it is utilized for the purposes aforementioned.