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Development of antibodies specific to the pathogenic prion protein

On the basis of structural analyses of normal and pathogenic prion protein, Neil R. Cashman's group (University of Toronto) succeeded in producing monoclonal antibodies specific to the pathogenic form. This unprecedented achievement could lead to novel diagnostic and therapeutic applications in the field of prion diseases.

Paramithios, E., et al. (2003). **A prion protein epitope selective for the pathologically misfolded conformation.** *Nat Med* 9 (7) : 893-899.

Serological analysis of false-positive reactions in transfusion-transmitted infectious agent testing

A seroepidemiological study by Kiely et al. (Australian Red Cross Blood Service-Victoria, Melbourne, Victoria, Australia) reveals that most false-positive results to hepatitis B screening are sporadic. In contrast, more than half of donors giving false positive results for HIV and hepatitis C antibody screening will subsequently produce false positive results again.

Kiely, P., et al. (2003). **Analysis of voluntary blood donors with biologic false reactivity on chemiluminescent immunoassays and implications for donor management.** *Transfusion* 43 (5) : 584-590.

Autologous marrow graft for treating cardiac diseases

Two independent groups exploited the capacity of certain bone marrow cells to differentiate into blood vessel-forming cells as a means of treating cardiac insufficiency, by intra-cardiac autologous marrow graft. Although the results are preliminary, improvements noted in the majority of patients demonstrate the potential of this treatment strategy.

Stamm, C., et al. (Rostock University, Germany) (2003). **Autologous bone-marrow stem-cell transplantation for myocardial regeneration.** *Lancet* 361 (9351) : 45-46.

Tse, H. F., et al. (Hong Kong Sanatorium and Hospital, Hong Kong) (2003). **Angiogenesis in ischaemic myocardium by intramyocardial autologous bone marrow mononuclear cell implantation.** *Lancet* 361 (9351) : 47-49.

A biosensor for detecting bacteria in platelet concentrates

Boris Rotman and Mindy A. Cote (Brown University, Providence, and BCR Diagnostics, Inc., Jamestown, RI, USA) devised a biochemical assay specifically designed for bacterial detection in platelet concentrates. The method is simple, rapid, specific, and relatively sensitive.

Rotman, B. and Cote, M. A. (2003). **Application of a real-time biosensor to detect bacteria in platelet concentrates.** *Biochem Biophys Res Commun* 300 (1) : 197-200.

Viability and therapeutic efficacy of umbilical cord blood cells

The results of a study from Hal E. Broxmeyer et al. (Indiana University School of Medicine, Indianapolis, IN, USA) indicate that cord blood cells can be stored frozen for up to 15 years without significant loss of viability upon thawing.

Broxmeyer, H. E., et al. (2003). **High-efficiency recovery of functional hematopoietic progenitor and stem cells from human cord blood cryopreserved for 15 years.** *Proc Natl Acad Sci USA* 100 (2) : 645-650.

Transfusion-related acute lung injury (TRALI) : an epidemiological study

The results of Lynn K. Boshkow and her team (Oregon Health Sciences University, Portland, OR, USA) indicate that transfusion of cellular blood components (red blood cells and platelets) is associated with a higher risk of TRALI. In addition, certain patients, notably cancer and cardiac patients, are more likely to experience this adverse transfusion reaction.

Silliman, C. C., et al. (2003). **Transfusion-related acute lung injury : epidemiology and a prospective analysis of etiologic factors.** *Blood* 101 (2) : 454-462.