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# Translation of Respiratory Syncytial Virus

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## Description

Cellular therapy is the replacement of unhealthy or damaged cells or tissues by new ones. Because neurodegenerative diseases, cerebral strokes, and traumatic injuries to the central nervous system (CNS) produce neurological deficits that result from neuronal loss, cell therapy is a prominent area of investigation for the treatment of neurological diseases and injuries.

## Respiratory Syncytial Virus

Respiratory Syncytial Virus (RSV) is a leading cause of hospitalization in children less than 1 year of age and causes substantial morbidity. Although there is not currently a vaccine available to prevent RSV infection, prophylaxis with the humanized monoclonal antibody palivizumab has been shown to reduce the rate of RSV hospitalization in premature infants and those infants with chronic lung disease or congenital heart disease. Because palivizumab has not been shown to have a beneficial clinical effect on established RSV disease such as reducing the rate of mechanical ventilation and mortality in children afflicted with RSV, there has been considerable debate as to the cost-benefit ratio of administering palivizumab according to international guidelines. Palivizumab has demonstrated a favorable side-effect profile in clinical trials without the development of anti-palivizumab antibodies. Future studies are needed to determine whether palivizumab, or other more potent monoclonal antibodies which are currently undergoing clinical trials, will reduce the long-term sequelae of RSV infection such as the development of wheezing and asthma.

Psoriasis is a common chronic and disabling inflammatory disease that has an enormous physical, functional and psychosocial impact on patients' quality of life. To date several conventional therapies are available for the treatment of this condition which, although providing clinical response, do not maintain long-lasting disease remission and at times show poor tolerability with potential toxicity thus limiting their use. A challenge in psoriasis management is to utilize precociously an adequate therapy and to achieve effective and safe maintenance of its clearance by improving both skin and joint manifestations as well as to prevent joint destruction and disability. Recent improvement in the knowledge of the pathogenesis of this disease was fundamental for the development of novel targeted treatment options that may be effective, safer and well tolerated on long-term administration periods, thus improving patient's quality of life. These novel agents, which are called "biologics", target specifically tumor necrosis factor-α or T cells.

## Adult Living-Related Liver Transplantation

Neural progenitor and stem cells generate the main phenotyes of the nervous system, and offer a model of choice for cellular therapy in the CNS. With the confirmation that neurogenesis occurs in the adult brain, and the recent isolation and characterization in vitro of neural progenitor and stem cells from the adult CNS, new strategies are being devised and have the potential to treat a broad range of CNS diseases and injuries. We report our single center experience with the use of basiliximab, a chimeric monoclonal antibody directed against the alpha chain of the interleukin-2 receptor, in combination with a steroid- and tacrolimus-based regimen in adult to adult living-related liver transplantation (ALRLT). Sixty consecutive ALRLTs were analyzed.

All patients received two 20-mg doses of basiliximab (days 0 and 4 after transplantation) followed by tacrolimus and a dose regimen of steroids. Follow-up ranged from 6 to 1699.4 days after transplantation. Of the recipients, 95% remained rejection-free during follow-up, with an actuarial rejection-free probability of 96.61% within 3 months. Three patients had episodes of biopsy-proven acute cellular rejection (ACR). Actuarial patient and graft survival rates at 3 years were 82.09% and 75.61%. Six patients (10%) experienced sepsis. There was no evidence of cytomegalovirus infections or side-effects related to the basiliximab. We found zero de novo malignancy, although we observed 5 patients with metastatic spread of their primary malignancy during the follow-up. Basiliximab in association with tacrolimus and steroids is effective in reducing episodes of ACR and increasing ACR-free survival after ALRLT.

Ankylosing spondylitis is a chronic inflammatory condition which preferentially affects the axial skeleton, often beginning in the sacroiliac joints. The etiology of the pathologic lesions of this condition including enthesitis, erosive articular changes, osteitis, and fibrous ankylosis, as well as changes which occur in the eye, gastrointestinal tract, cardiovascular system, and lungs is unknown;

however, there is a strong association with HLA-B27, which indicates altered immunity. One of the major mediators of the immune response is TNF-α, which functions as a pleiotrophic soluble messenger primarily from macrophages. TNF-α is principally involved with activation of both normal and transformed cells, including endothelium, synoviocytes, osteoclasts, chondrocytes, and fibroblasts. The cornerstone of medical management of ankylosing spondylitis includes intensive physical therapy and nonsteroidal anti-inflammatories for symptomatic relief. However, it is becoming increasingly recognized that TNF-α blockade has an important role in the reduction of spine and joint inflammation. This review discusses the data that supports use of etanercept in the treatment of ankylosing spondylitis. Trastuzumab is a monoclonal humanized antibody that has revolutionized the treatment of patients with Her2-positive breast cancer.

Already well-established in advanced stage disease, the substance was recently introduced in the adjuvant setting, reducing disease recurrences by more than 50% and mortality by approximately one third. Trastuzumab is a rationally designed substance which binds to cancer cells expressing the targeted antigen, and, by different mechanisms, causes tumor cell degradation. However, only one third of patients have an initial response to trastuzumab therapy, and the majority of initial responders demonstrate disease progression within 1 year of treatment initiation. It is therefore necessary to gain further insight into mechanisms of resistance, and develop ways to overcome those. In this article, the role of trastuzumab in early and advanced stage breast cancer is reviewed. We discuss current understandings of the specific tumor biology of Her2-positive breast cancer, and review the mechanism of action of trastuzumab. Further, we try to highlight possible mechanisms of resistance.