

## Editorial

### Apoptosis in Skeletal and Cardiac Muscles

Apoptosis is a specific form of programmed cell death that plays an important role in development, growth regulation and diseases. Skeletal muscles in adult animals are fully differentiated syncytial cells and apoptosis, which is known to be present in tissues that modulate their cellular homeostasis under the influence of growth and/or hormonal factors, has been recently described in early stages of myocardial infarct and in dystrophic skeletal muscle. The role and the cellular and molecular aspects of muscle cell death and apoptosis are far from being clear, particularly after several types of muscle damage (genetic defects, exercise-induced damage, oxidative stress, etc.). It can be predicted that apoptosis plays a major role in regulating myoblast proliferation during muscle regeneration, and in the progression of dystrophinopathies. A particularly important area has recently grown concerning cardiac muscle and reperfusion injury after ischemia. In this case too, a major role of apoptosis is emerging. The purpose of the First International Conference on Apoptosis in Skeletal and Cardiac Muscle to be held in Abano Terme, Padova (Italy) from June 1 to June 4, 1996 is to give the opportunity to international experts of traditionally separated fields to meet. Abano Terme is located in the north-east part of Italy, very close to Padova (15 minutes) and Venice (45 minutes) by both car, bus and train, and is a famous spa for its hot water springs where people come from all part of Italy and Europe. In the beginning of June the season is particularly mild (20-25 °C) and Abano is a particularly lovely place. Abano Terme is best served by the International Airport of Venice "Marco Polo" (Tessera, Venice). Abano Terme can be reached by direct bus from Padova Railway Station. Milan (Linate and Malpensa) and Zurich International Airports are connected by train to Padova (a stop before Venice) along the Milan-Venice railway. Abano Terme is also served by the highways Bologna - Venice and Milan - Venice.

Conference participants will discuss on the new perspectives that the extraordinary progress of cellular and molecular aspects of apoptosis can shed on biology and pathology of skeletal and cardiac muscle. Besides lectures of John Kerr, Richard A. Lockshin, Alfred A. Goldberg, Anna Fidzianska and Malcom J. Jackson covering major topics related to apoptosis and muscle physiopathology, a large space is given to young scientists and new groups interested in this exciting new field. Gen Itoh and some of his Colleagues from Aichi Medical University (Japan) present data on apoptosis in cardiac, smooth muscle and skeletal muscle after ischemia-reperfusion periods, and Ryoichi Matsuda from University of Tokio a very attractive method to stain in vivo damaged myofibers, either apoptotic or necrotic. Roberta A. Gottlieb, Giorgio Olivetti, Natalie Roy, Luisa Gorza, Roger Sabbadini and Samuil R. Umansky present results of international research teams from East and West Europe, North America and Japan working on apoptosis of myocardiocytes, both in vivo and in vitro. Some of these researches are advanced enough to address questions on pharmacological approaches to muscle damage and apoptosis. Janeth Smith, James G. Tidball and Marco Sandri present conclusive results of apoptotic features in skeletal muscle of dystrophic mice. The preliminary negative results of Migheli et al. in several human myopathies could find an explanation either in the difference among sedentary and exercised mdx mice shown by Carraro and Podhorska or in species-specific differences. Indeed Tidball shows that the dystrophin/perforin- double mutant mice is much less prone to muscle apoptosis than the mdx mice. In any case, Tidball's results add fundamental knowledge on secondary pathogenesis of muscle damage in dystrophic muscle, since they suggest the essential involvement of cytotoxic T-lymphocytes. The list of experts contributing reviews and original data on molecular, cellular and developmental aspects of apoptosis is too long to be here typed, but the Conference participants and the BAM readers will find an almost complete collection of data and references for future work. We are confident that this BAM issue and the accompanying Bench-top Manual of the One-day Tutorial on Analytical Tools for Muscle Apoptosis (both are published by Unipress, Padova, Italy) will remain a fundamental source of valuable information for years, not months, even in this era of rapid advancement of apoptosis sciences.

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