

Preface

This volume of *Molecular Neurobiology* contains the edited version of papers presented at the Satellite meeting of the 14th Biennial Meeting of the International Society for Neurochemistry. The Satellite meeting, entitled "Cellular and Molecular Mechanisms of Drugs of Abuse: Cocaine and Methamphetamine" was held August 19–20, 1993 in Nice, France. The overall atmosphere of the meeting, the location, and especially the surroundings of the hotel were most pleasant. Owing to the relatively small number of participants, each was able to enjoy the scientific exchange in this most relaxing atmosphere.

The major goal of the conference was to understand the cellular and molecular mechanisms of drugs of abuse, particularly cocaine and methamphetamines. Tremendous work has been done over the years in the area of drugs of abuse; however, the neurochemical mechanisms are still unclear. The meeting was opened by Pd. Feytor Pinto, the High Commissary of PROJECTO VIDA, Portugal. He offered an overview of the problems of drug abuse in Europe, and in Portugal in particular.

The first session was devoted to the underlying mechanisms of cocaine addiction. Dr. Richard Rothman from the addiction research center of National Institute on Drug Abuse presented a review of the effects of dopaminergic agents in humans and implications for medication development, followed by several other scientists who presented the involvement of dopaminergic, noradrenergic, GABA, and NMDA systems, along with the platelet monoamine oxidase activity and ^3H -imipramine binding in the heroin and cocaine addicts. Dr. Martin-

Iverson presented a survey of work on the behavioral sensitivity and tolerance to cocaine and the involvement of dopamine receptors by dopamine. Dr. Hadfield presented an overview of cocaine's selective regional effects on central monoamines and Dr. Itzhak presented on the cocaine-induced kindling in mice and the role of NMDA and nitric oxide.

The second session of the meeting dealt with prenatal exposure to cocaine and with the postnatal changes it causes. Dr. Stadlin presented on the effects of prenatal exposure to cocaine and on the postnatal changes in dopamine D2 receptor binding and in the mRNA in selected regions of the rat brain. Drs. Tavares and Silva Aruja described the effects of prenatal cocaine exposure on the photoreceptors, retinal ganglion cell layers, and selective neuropathological changes in the prefrontal cortex. Dr. Valchář reviewed the use of rat mesencephalic neuronal cell culture for different periods as a model of dopamine transporter ontogenesis. Dr. Sobrian presented on prenatal exposure to cocaine and its interaction with nicotine as they effect maternal toxicity, postnatal development, and neurobehavioral changes in the rat. Several additional issues were discussed during a question-and-answer period.

The third session dealt with the effects of methamphetamines and related drugs, such as MDA, MDMA, and fenfluramine. Dr. Campbell presented data that describe the use of toxicokinetics for the safety assessment of drugs acting in the brain. Dr. Cadet presented on methamphetamine-induced neurotoxicity via oxidative stress and the role of CuZn-superoxide dismutase transgenic mice. Dr. Westphalen

presented the nature of D,L-fenfluramine-induced serotonin reuptake transporter loss in rats. Drs. O'Callaghan and Miller described the role of temperature, stress, and other factors in the neurotoxicity of substituted amphetamines, which includes methamphetamine, MDMA, and fenfluramine. Dr. Takhashi reviewed the effects of methamphetamine on the mRNA level for 14.3.3 chain in the human cultured cells. Several issues were raised during the very lively but informal discussion, especially the definition of neurotoxicity and the neurochemical criteria for neurotoxicity evaluation.

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Health, PROJECTO VIDA from Portugal, Medical School of Porto, Portugal, and from National Center for Toxicological Research, US Food and Drug Administration. We express our gratitude to the organizations and the government agencies. All papers included in this volume were peer-reviewed by two referees, and we want to thank our reviewers for their invaluable time and efforts. We also thank Humana Press for its efficient processing of the manuscripts. Last, but not least, we want to thank many of our colleagues who helped us in the organization of this satellite meeting.

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