

METHODS IN MOLECULAR BIOLOGY™ 458

# Artificial Neural Networks

*Methods and Applications*

*Edited by*  
David J. Livingstone

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## Artificial Neural Networks *Methods and Applications*

Edited by

**David J. Livingstone, CChem FRSC**

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As an extension of artificial intelligence research, artificial neural networks (ANN) aim to simulate intelligent behavior by mimicking the way that biological neural networks function. In *Artificial Neural Networks: Methods and Applications*, an international panel of experts report the history of the application of ANN to chemical and biological problems, provide a guide to network architectures, training and the extraction of rules from trained networks, and cover many cutting-edge examples of the application of ANN to chemistry and biology. In the tradition of the highly successful *Methods in Molecular Biology*™ series, this volume exhibits clear, easy-to-use information with many step-by-step laboratory protocols.

Comprehensive and state-of-the-art, *Artificial Neural Networks: Methods and Applications* is an excellent guide to this accelerating technological field of study.

### FEATURES

- Serves as a detailed, easy-to-use guide to the application of artificial neural networks
- Includes methods involving the mapping and interpretation of Infra Red spectra and modelling environmental toxicology

### CONTENTS

Artificial Neural Networks in Biology and Chemistry: *The Evolution of a New Analytical Tool*. Overview of Artificial Neural Networks. Bayesian Regularization of Neural Networks. Kohonen and Counter-Propagation Neural Networks Applied for Mapping and Interpretation of IR Spectra. Artificial Neural Network Modeling in Environmental Toxicology. Neural Networks in Analytical Chemistry. Application of Artificial Neural Networks

for Decision Support in Medicine. Neural Networks in Building QSAR Models. Peptide Bioinformatics: *Peptide Classification Using Peptide Machines*. Associative Neural Network. Neural Networks Predict Protein Structure and Function. The Extraction of Information and Knowledge From Trained Neural Networks. Index.

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