

The Usefulness of the Artificial Neural Networks in the Investigation of Significant Factors on the Biopharmaceutical Relevant Parameters †

Daniela Elena Popa ^{1,*}, George Traian Alexandru Burcea-Dragomiroiu ¹, Carolina Negrei ¹, Octav Ginghină ¹, Maria Bârcă ¹

¹ Carol Davila University of Medicine and Pharmacy, Bucharest, Romania

* Correspondence: daniela_popa@umfcd.ro (D.E.P.);

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Abstract: Artificial Neural Networks (ANN) are useful tools, primarily for the onset, implying the non-linear relationships encountered in the pharmaceutical process. ANNs are biologically inspired computer programs designed to simulate how the human brain processes data, that is, multi-dimensional, clustered, and imprecise information, in many cases used to decode complicated real word problems (thus including the pharmaceutical process) that are challenging to understand and to evaluate using statistical approaches. In the pharmaceutical sciences, the use of ANNs ranges from the interpretation of analytical data, design of drugs and dosage forms, including biopharmaceuticals data and clinical pharmacy, to identifying critical process parameters in tablet manufacturing (loss of drying, particle size, residual solvents in API). Although they are under continuous improvements, using ANNs in the pharmaceutical field relies on a more stable process, higher drug product quality, and better patient care.

Keywords: artificial neural networks; biopharmaceutics; drug design.

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Conflicts of Interest

The authors declare no conflict of interest.