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Educating Pharmaceutical Engineers in Preparation for the Biopharmaceutical drugs Industry

Biopharmaceutical drugs and biomanufacturing are a rapidly growing industry. Education and training for production and processing in these field are lagging. As part of the Pharmaceutical Engineering B.Sc. undergraduate program at Azrieli College of Engineering Jerusalem a hands on fourth year student laboratory training course was developed that centers on biotechnology methods and operating a bioreactor. This newly developed course applies pharmaceutical engineering knowledge, practical and theoretical, in the bioprocess and biopharmaceutical industry, including upstream optimization, fermentation and downstream process, based on the unique multidisciplinary curriculum of the Pharmaceutical Engineering degree. The aims of the course are to equip the pharmaceutical engineering students with the necessary knowledge and skills to function effectively within any area of the biopharmaceutical sector, with the adaptability to respond to the needs of a rapidly evolving industry and to facilitate the transition from academia to industry. At the core of the course, student perform a lab scale fermentation process for the production, purification and analysis of a recombinant active Tyrosinase enzyme. Tyrosinase can then be used to manufacture L-DOPA drug from L-tyrosine. The course is constructed of 6 hours of lectures following 22 hour of laboratory work. Student assessment are based on quizzes containing both theoretical and practical questions, laboratory work, learning skills and one cohesive report for the whole process, summarizing all the experiment data, results as well as calculation.

Biography

Tamar Gilon has completed her PhD from The Hebrew University from The Department of Biochemistry and Molecular Biology The Hebrew University Jerusalem. From the year 2008 Tamar has been a faculty member at The Department of Pharmaceutical Engineering, Azrieli College of Engineering, Jerusalem and part of the developing team that build a unique pharmaceutical engineering multidisciplinary B.Sc degree. Academic activity performed include; Head of the Center for Promotion of Teaching & Learning, Member of the Departmental Pedagogical Committee, Tamar is an active researcher at the college in the field of fermentation of genetically engineered bacteria for production of recombinant proteins



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