

In the past five years, in particular, major advances have occurred in commercializing the large-scale production of peptides. Companies in the United States, Switzerland, Japan and Canada provide peptides in kilogram quantities. They produce peptides such as ACTH, calcitonin, and parathyroid hormone by solid-phase synthesis. For example, chemists in one Canadian company have developed a solid-phase peptide synthesis process capable of producing kilogram quantities of biologically active peptides up to 50 amino acids long with 98% purity. Production time is estimated at 1 to 3 weeks per batch.

In the technologies related to the synthesis and purification of biologically active peptides, there has been at least a thousand-fold improvement in production capabilities. For example, with the technologies available in 1980, peptide production would have been measured in milligram or possibly gram quantities per batch and would have required several weeks. As mentioned above, batch sizes of one kilogram are now routine, with batch production time varying from one to three weeks. Using continuous production techniques, a pharmaceutical laboratory could produce up to one kilogram per week. For a larger facility, a ten-fold scale up would seem possible given the current state of technology. This would lead to economies of scale that many say would decrease production cost from dollars per microgram to cents per milligram of biologically active peptides.