

REDUCED CYCLE TIME METHODS FOR THE POWERPLEX® ESX AND ESI SYSTEMS

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The PowerPlex® ESX and ESI Systems were released by Promega in September 2009 to meet the requirements for the new European Standard Set (ESS) of loci. These two systems differ from each other in the selection of loci that are designed as mini and midi-STR amplicons. The PowerPlex® ESX Systems contain the newly added European loci (D1S1656, D2S441, D10S1248, D12S391, and D22S1045) as mini and midi-STRs, whereas the PowerPlex® ESI Systems maintain these as standard sized amplicons, reducing the size of many of the existing ESS loci (D3S1358, D8S1179, D18S51, TH01, vWA, smaller FGA alleles) and D16S539 and D19S433 to amplicons under 230 bases. The cycling conditions for both systems are the same and typically take 3 hours and 25 minutes to complete. Here we describe modifications of the cycling methods for each system that significantly reduce cycling time without changes to the chemistry, reaction volume, template amount or cycle number. These cycling changes do not adversely affect balance, sensitivity or robustness to PCR inhibitors compared to the standard cycling condition.