Product information

Product Name: PEC Combo

Catalog No: VN280P

Packing Size: 6 x 1.25 ml including 1 x 1.25 ml of PEC-1, PEC-1-GC, PEC-2, PEC-2-GC, PEC-P and PEC-B, respectively.

Shipping Condition: Ambient temperature

Storage Condition: -20^{0}C

Shelf life: At least 4 years at -20^{0}C. Sit room temperature or 60^{0}C water bath for re-melting before you use it in PCR. Note: some precipitation / crystallization may occur over time. Soaking at 60-70^{0}C can restore the solution.

Product Description:

A family of PCR enhancing cocktails (PECs) has been developed to overcome PCR inhibition, enhance PCR amplification, and simplify the PCR protocol. In combination with inhibition-resistant Taq mutants, these cocktails enable efficient amplification of exogenous, endogenous, and high GC-content DNA targets directly from crude samples containing human plasma, serum, and whole blood, without the need for DNA purification. The mutant Taq enzymes can tolerate up to 40% plasma, serum, or whole blood, and templates with as high as 80% GC content in PCR in the presence of these enhancer cocktails. The enhancer cocktails also improve the performance of the Taq mutants in real-time PCR amplification using crude samples, both in SYBR Green fluorescence detection and TaqMan assays. With these novel enhancer mixes, DNA amplification from crude samples with most commercial Taq DNA polymerases is possible.

Additionally, a PEC combo allows scientists to sample the six most popular PCR enhancers to determine which one is most suitable for their application.

Troubleshooting guide

Precipitation / Crystallization	It's normal. Soaking at 60-70^{0}C can restore the solution.
Low yield of PCR product with PEC	Try PCR without PEC first when you amplify the gene from purified DNA. Apply PEC in the PCR only when you encounter a problem to get products or when you amplify the target gene from crude samples.
Too strong bands	Reduce cycles or reduce the amount of PEC in the PCR, such as using 6.25 µl of PEC per 25 µl reaction. You may titrate to find optimal amount.
Low yield without PEC but no PCR product at all with PEC	PEC usually lowers melting temperature for 3-5^{0}C; so, you should try gradient annealing temperature to find optimal annealing temperature for your target when you apply PEC in the PCR.
No products from GC-rich target gene	Make sure you select PECs-GC. You may reduce the amount of PECs-GC in PCR if GC content of the target gene is less than 65%.

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Selection of PCR enhancer cocktails (PECs)

	PEC-1	PEC-1-GC	PEC-2	PEC-2-GC	PEC-B	PEC-B-GC	PEC-P	PEC-P-GC
Purified DNA	√(opt)	√	-	-	√	√	-	-
Heparin treated blood	√	√	-	-	√	√	-	-
Citrate treated blood	√	√	√	√	√	√	-	-
EDTA treated blood	√	√	√	√	√	√	-	-
Heparin treated plasma	√	√	-	-	-	-	-	-
Citrate treated plasma	-	-	√	√	-	-	-	-
EDTA treated plasma	-	-	√	√	-		-	-
Serum	-	-	√	√	-	-	-	-
Chocolate	-	-	-	-	-	-	√	√
Cheese	√	√	-	-	-	-	-	-
Milk	√	√	-	-	-	-	-	-
Plant	-	-	-	-	-	-	√	√
Feces	-	-	-	-	-	-	√	√
GC-rich target	-	√	-	√	-	√	-	√
Non-GC-rich target	√	-	√	-	√	-	√	-

GC = PEC for high GC-content targets. Generally, if you are working with PCR samples containing purified DNA, you don't need to use PEC or use a low amount of **PEC-1 or PEC-B**. For high GC-content targets, you may select **PEC-1-GC or PEC-B-GC**. However, for direct amplification of samples containing whole blood, plasma, serum or other crude samples, we recommend selecting the appropriate PEC depending on the sample type and GC content of the target gene. Please refer to the table above for details on choosing the proper enhancer.

The concentrations of PECs are 2X. We recommend using 12.5 µl in a 25 µl PCR or 25 µl in a 50 µl total PCR volume for higher concentration crude samples. If you are amplifying a short, easy target from a low concentration crude sample, you may not need PEC or need less of it in the PCR. We suggest performing a parallel experiment with and without PEC to determine if it is needed. If not, you can proceed without it. If it is needed, we suggest titrating the amount of PEC in the PCR according to your target and type of crude sample starting from 2 µl and increasing in increments of 2 µl up to half the volume of the PCR to find the optimal concentration.

Note: This product is for R&D use only

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