



Product information

Product Name: PEC Combo

Catalog No: VN280P

Packing Size: 5 x 1.25 ml (500 x 25 µl rxns) 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°C

Shelf life: At least 3 years at -20°C. Sit room temperature or 60°C water bath for re-melting before you use it in PCR. Note: some precipitation / crystallization may occur over time. Soaking at 60-70°C can restore the solution.

Product Description:

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

PEC combo lets scientists sample six most popular PCR enhances to see which one is most suitable for their application

Troubleshooting guide

Precipitation / Crystallization	It's normal. Soaking at 60-70°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°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%.

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 PEC or use low amount of **PEC-1** or **PEC-B**. For high GC-content targets, you may select **PEC-1-GC** or **PEC-B-GC**. Otherwise, for direct amplification of samples containing whole blood, plasma, serum or other crude samples, we recommend appropriate one of PECs, depending on what kind of sample used and GC content of the target gene. Please see the table above for details to choose the proper enhancer.

The concentrations of PECs are 2X. We recommend applying 12.5 µl in 25 µl PCR or 25 µl in 50 µl total PCR volume for higher concentration of crude sample. If you amplify short, easy target from low concentration crude sample, you may not need or need less PEC in PCR. You should perform a parallel experiment with or without PEC first. If you can get satisfied result, you may not need PEC. If not, we suggest a titration of PEC in PCR according to your target and type of crude sample starting from 2 µl in an increment of 2 µl up to half volume of PCR to find an optimal concentration.

Note: This product is for R&D use only