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DATA SHEET

Version: 03
Revision date: 15/06/2023

1. Identification

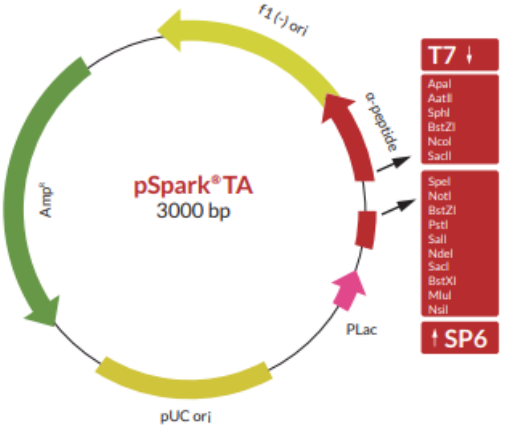
Product name **pSpark® TA**

(50ng/uL) 20 reactions

Cat No **C0020**

2. Description

pSpark® TA is efficient, stable and easy-to-use DNA cloning vector based on an optimized TA technology for cloning single 3´-adenine overhanging DNA. The vectors are prepared by digestion of pSpark® TA at EcoRV site and the subsequent addition of a single thymidine at each 3´- end to allow cloning Taq DNA Polymerase amplified DNA fragments. Its exclusive procedure offers greater efficiency and less background of blue colonies than the others TA vectors.



3. Composition

Item	Quantity
pSpark® TA DNA cloning vector	20 rxn (50ng/µL)
600kb control insert	5 µL
T4 DNA ligase (5 Weiss U/µL)	20 µL
10x T4 DNA ligase Buffer	100 µL

4. Features

- **Efficient:** >600 white positive colonies expected under optimal conditions.
- **Easy-to-use:** eliminate screening of recombinants due to its.
- **High stability:** vector without cloning bias due to transcription of toxic genes.
- **Fast protocol**: ligation time from 60 minutes to overnight.
- **Compatible:** with direct cloning of PCR products.
- **Great versatility.**
- **Cost avoidance:** removes primer phosphorylation.

5. Storage specifications

Store in a non-frost-free freezer at **-20°C.**

6. Applications

- Cloning of non-proofreading PCR fragments.
- Production of ssDNA.
- Blue/white screening for recombinants.
- In vitro transcription from T7/SP6 dual-opposed promoters.
- One restriction enzyme allows gene fragment excision.

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7. Recommended protocol

1. Amplification

Amplify DNA with any proofreading polymerase following suggested protocol. Gel purifies the insert or check by electrophoresis the quality of amplified DNA. If a single band appears on the gel and template DNA is not a vector with Ampicillin resistance, like the pSpark® TA DNA cloning vector, then gel purification is not needed.

2. Ligation

Suggested ratio of insert to vector is 5:1. Use the equation **ng insert = 33ng x kb** (of insert, that is, for a 1kb insert only 33 ng are needed) or use **1µL** of unpurified PCR product for directly ligation.

Mix:

1 µL of pSpark® TA DNA cloning vector (50ng/µL)
1 µL 10x T4 DNA ligase buffer
X µL of insert
1 µL of T4 DNA ligase (5 Weiss units)
H_2O to **10 µL**
Incubate the reaction 60 minutes at 22°C (a ligation time from 10min to overnight could be used)

3. Transformation

Transformation can be made with your regular protocol, competent cells and selective media. As pSpark® TA DNA cloning vector has Ampicillin resistance, this antibiotic is needed. Also, as pSpark® TA DNA cloning vector has blue/white screening capability, IPTG/XGal plates are recommended.
A suitable transformation protocol is:

- Thaw competents cells on ice, take **50 µL** and put into a cool 1,5 mL tube.
- Add **10 µL of the ligation mixture**, mix by gently flicking with fingertips and incubate on ice for 30 minutes.
- Heat-shock the cells at **exactly 42°C for exactly 45 seconds** (do not shake) and then transfer to ice for 2 minutes.
- Plate the cells into media with antibiotic, IPTG and XGal and incubate overnight at 37°C.

4. Analysis of transformants

Either colony PCR or plasmid purification and digestion could be used for analysis of transformants. pSpark® TA DNA cloning vector has pUC/M13 forward and reverse sequencing primers binding site for sequencing or amplification of insert. Insert size when amplified with pUC/M13 fw and rev primers is about 200bp longer than the real size of insert.

5. Expected results

Up to 2500 positive white colonies for a 60 min ligation of 33 ng of supplied control insert (600 kb) and less than 20 negative blue colonies when using cells with a transformation efficiency of 4 x 10^7 cfu/ug.

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7. Further information

Product Use Limitations

This product is developed, designed and sold exclusively only for research purposes use. The product was not tested for use in diagnostics or for drug development, nor is it suitable for administration to humans or animals.

Disclaimer

The information provided in this Data Sheet is correct to the best of our knowledge and belief at the date of publication. This information is intended only as a guide and should not be taken as a warranty or quality specification. Canvax Reagents S.L.U. shall not be held liable for any damage resulting from handling or from contact with the above product.