Cloning

Choosing Invitrogen™ competent cells based on application

Is this for routine cloning and subcloning?

- **Yes** → Routine cloning
- **No** → Specialized cloning / Protein production

Routine cloning

Is high transformation efficiency needed?

- **Yes** → **Cloning**
  - TOP10
  - MAX Efficiency™ DH10B™
  - MAX Efficiency™ DH10B™ T1R
  - MAX Efficiency™ DH5α™
  - MAX Efficiency™ DH5α™ T1R
  - Mach1™-T1R
- **No** → **Subcloning**
  - DH5α™

Specialized cloning

Is this for gDNA or library production?

- **Yes** → **gDNA or library production**
  - OmniMAX™ 2 T1R
  - TOP10 Electrocomp™ *E. coli* ⚡
  - ElectroMAX™ DH10B™ ⚡
  - ElectroMAX™ DH10B™ T1R ⚡
  - MegaX DH10B™ T1R ⚡
  - ElectroMAX™ DH5α™-E ⚡
- **No** → Is this for unstable inserts?
  - **Yes** → **Unstable inserts and lentiviral vectors**
    - MAX Efficiency™ Stbl2™
    - One Shot™ Stbl3™
    - ElectroMAX™ Stbl4™ ⚡
  - **No** → Is this for methylation-sensitive plasmid DNA?
    - **Yes** → **Methylation-sensitive**
      - INV110
    - **No** → Is this for Invitrogen™ Gateway™ destination vector propagation?
      - **Yes** → **Gateway destination vector**
        - *ccdB* Survival™ 2 T1R
      - **No** → Is this for use with plasmids containing the R6K ori?
        - **Yes** → **Expresses the *pir* gene**
          - PIR1
          - PIR2
        - **No** → Is this for preparing single-stranded DNA (ssDNA)?
          - **Yes** → **Carries F´ episome***
            - TOP10F´ Electrocomp™ ⚡
            - ElectroMAX™ DH12S ⚡
            - MAX Efficiency™ DH5αF´IQ
            - INVαF´
          - **No** → Is this for maintaining *supF*-containing vectors?
            - **Yes** → **Carries P3 plasmid**
              - TOP10/P3
              - MC1061/P3
            - **No** → For more information, contact technical support

Protein production

Is this for expression of nontoxic genes?

- **Yes** → **T7 promoter**
  - BL21 (DE3)
  - BL21 Star™ (DE3)
- **No** → Is this for expression of toxic proteins?
  - **Yes** → **Arabinose-inducible promoter**
    - BL21-AI™
  - **No** → Is this for improved regulation of protein expression?
    - **Yes** → **T7 inhibitor**
      - BL21 (DE3) pLysS
      - BL21 (DE3) pLysE
      - BL21 Star™ (DE3) pLysS
    - **No** → Note: use GeneOptimizer™ tool to optimize sequence for higher protein expression in *E. coli* without losing protein function.
      - For more information, contact technical support

⚡ Electrocompetent cells

* Stbl4 and OmniMAX T1R competent cells also contain the F´ episome.

Note: Available in various packaging formats to meet throughput needs (bulk, One Shot™, MultiShot™ competent cells). More information can be found here.

Find out more at **thermofisher.com/compcells**

invitrogen

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