

# TREVIGEN<sup>®</sup> Product Data

*For Research Use Only. Not For Use In Diagnostic Procedures.*

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## Human DNA Ligase IV/XRCC4 Tetramer

**Catalog #:** 4140-100-EB

**Contents:**

4140-100-01	DNA Ligase IV/XRCC4 Tetramer	100 units
3900-500-13	10X REC Buffer 13	1 ml
4140-100-02	1X Storage/Dilution Buffer	1 ml

**Description:** Human DNA Ligase IV/XRCC4 participates in the repair of double-strand breaks in DNA via a direct nonhomologous end-joining (NHEJ) pathway. The repair involves the concerted action of several proteins, including heterodimeric Ku70/Ku80, DNA-dependent protein kinase, other accessory factors, and DNA ligase IV/XRCC4, which carries out the actual ligation reaction. DNA Ligase IV/XRCC4 exists as a tetramer containing two copies of each polypeptide with a molecular weight of approximately 300 kDa. The tetramer functions together with Ku protein, DNA-dependent protein kinase catalytic subunit, and other repair factors in a cell-free end-joining assay.

**Source:** The complex was purified together from a proprietary eukaryotic expression system co-expressing recombinant human DNA Ligase IV and XRCC4.

**Unit Definition:** One unit is the amount of enzyme required to ligate oligo (dT)<sub>24</sub> when hybridized to poly (dA)<sub>300</sub> at the rate of 1 pmole in 30 minutes at 37°C.

**Assay Conditions:** 4 pmoles of <sup>32</sup>P-oligo(dT)<sub>24</sub>, 0.2 pmole of poly(dA)<sub>300</sub>, in 1 X REC Buffer 13 [50 mM Tris-Cl (pH 7.5), 10 mM MgCl<sub>2</sub>, 100 µg/ml BSA, 10 mM DTT, 1 mM ATP, 0.1% Triton X-100], and serial dilutions of DNA Ligase IV/XRCC4 in a 20 µl reaction volume, are incubated at 37°C for 30 minutes. Ligation products are resolved by 20% denaturing polyacrylamide gel electrophoresis, detected by autoradiography, and quantitated.

**Storage Conditions:** The enzyme may be diluted in 1X Storage/Dilution Buffer (Cat# 4140-100-02) and stored frozen in working aliquots at -80°C. Avoid repeated freeze-thaws.

**Storage/Dilution Buffer:** 10 mM HEPES-NaOH (pH 7.4), 50 mM NaCl, 0.1% Triton X-100, 0.1 mg/ml BSA, and 1 mM DTT.

### References:

1. Lee, K.J., Huang, J., Takeda, Y., Dynan, W.S. 2000. DNA ligase IV and XRCC4 form a mixed tetramer that functions synergistically with other repair factors in a cell-free end-joining assay. *J Biol Chem* **275**:34787-34796.
2. Chen, L., Trujillo, K., Sung, P., Tomkinson, A.E. 2000. Interactions of the DNA ligase IV-XRCC4 complex with DNA ends and the DNA-dependent protein kinase. *J Biol Chem* **275**:26196-26205.

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**Lot Specific Data:**

Lot#:	9974K5
Total Activity:	100 units
Total Volume:	25 $\mu$ l
Protein Concentration:	0.093 mg/ml
Enzyme Activity:	4 units/ $\mu$ l
Specific Activity:	43,011 units/mg

**Human DNA Ligase IV/**

**XRCC4 Tetramer**

4140-100-EB

100 units

Store at  $-80^{\circ}\text{C}$

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