

# HaloTag<sup>®</sup> Technology

*Driving mammalian protein expression forward*



- ✓ ***Covalent binding of interchangeable synthetic ligands to fusion tag***
- ✓ ***Use a single clone for protein purification, pull-down, and imaging studies***
- ✓ ***Higher recovery, purity, functionality and solubility compared to other fusion tags***

*Compared to other tags:*

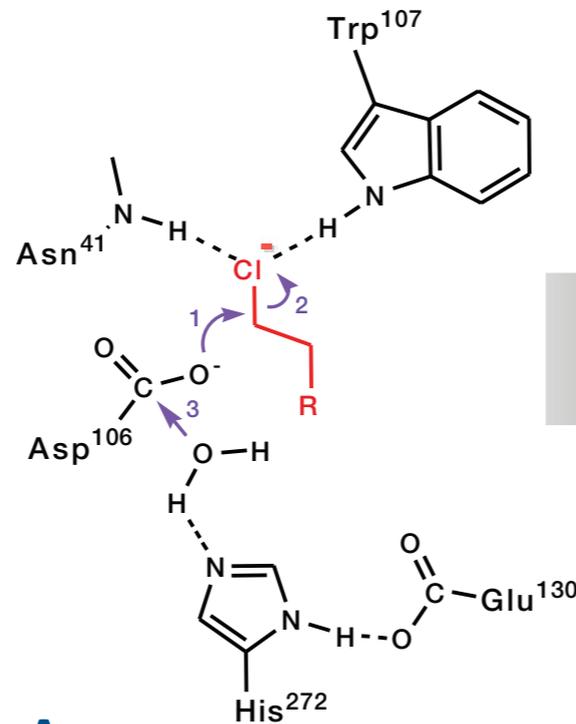
- Higher capacity than FLAG<sup>®</sup>
- Cleaner than His<sub>6</sub>
- No leaching (unlike GST)
- More flexible than GFP



## Origin and optimization

Optimized for mammalian protein expression

Catalytic process

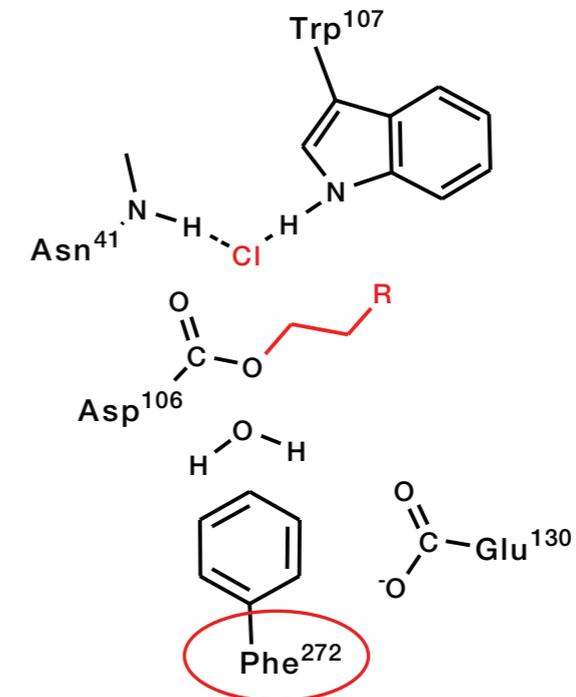


### DhaA

**Origin:** *Rhodococcus rhodochrous*

**Function:** Forms a covalent intermediate at His272 with chloroalkane substrates by removing Cl<sup>-</sup> upon hydrolysis with water.

Facilitated bond formation



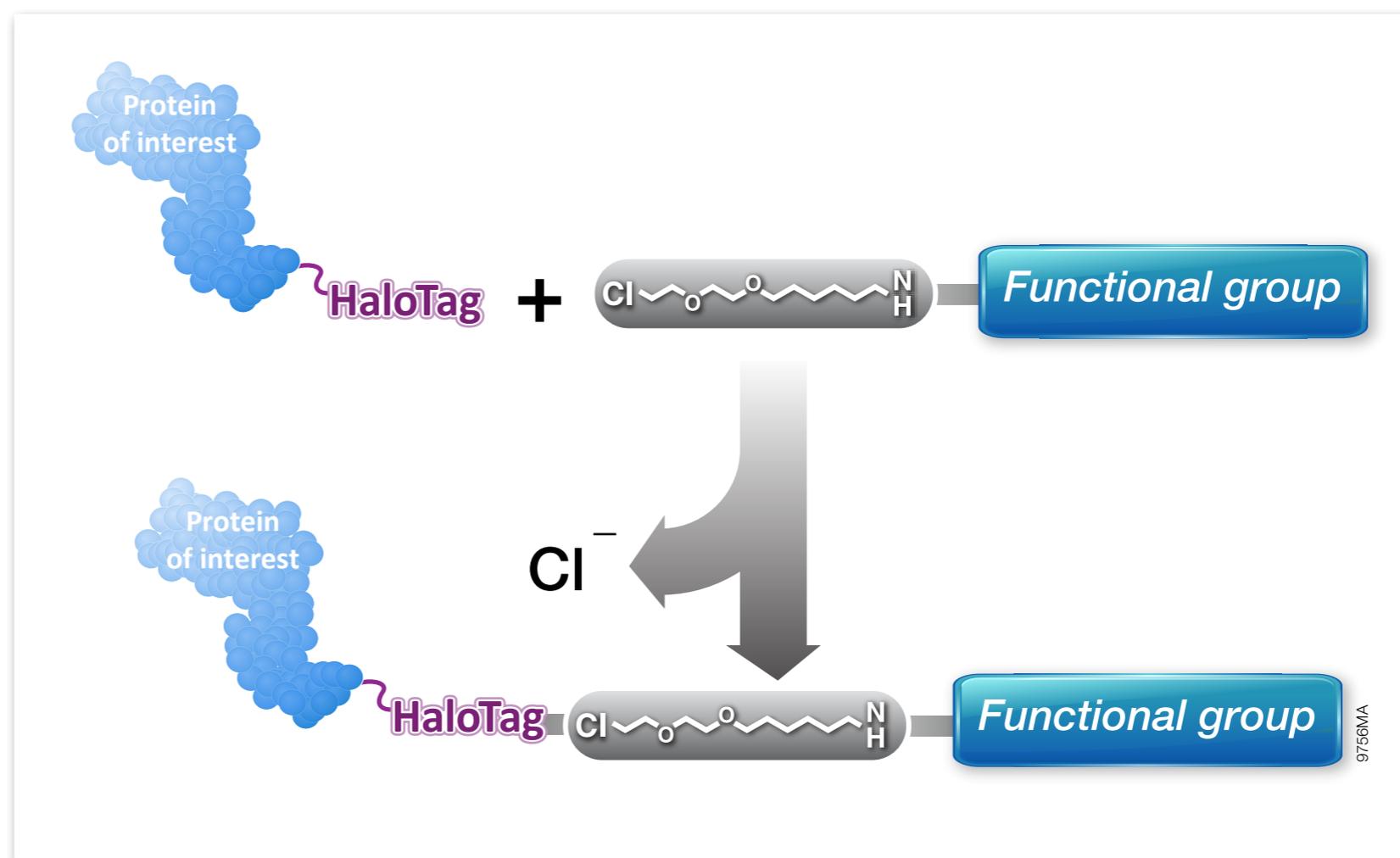
### HaloTag®

**Optimization:** His272Phe mutation allows formation of a stable covalent bond. Additional aa changes were made in DhaA to further optimize fusion tag performance.

**Result:** A fusion tag which rapidly forms a covalent attachment to synthetic chloroalkane-based ligands.  
**Ideal for protein purification, pull-downs and imaging.**

## *HaloTag<sup>®</sup> ligand chemistry allows interchangeable functionality*

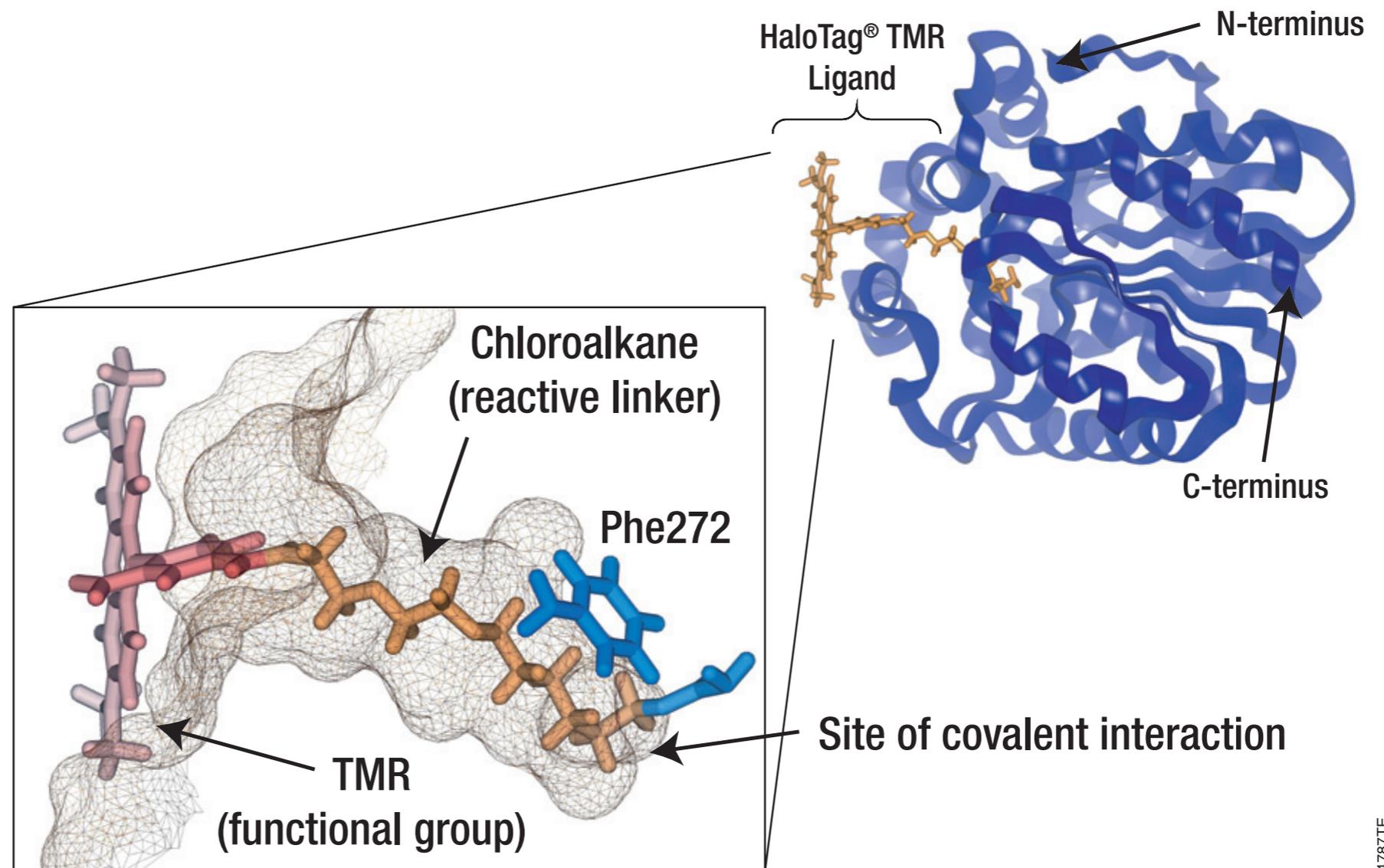
- The reactive linker is identical between all HaloTag<sup>®</sup> Ligands
- Move fluidly between protein purification, pull-downs and imaging assays by switching to a new functional group.



9756MA

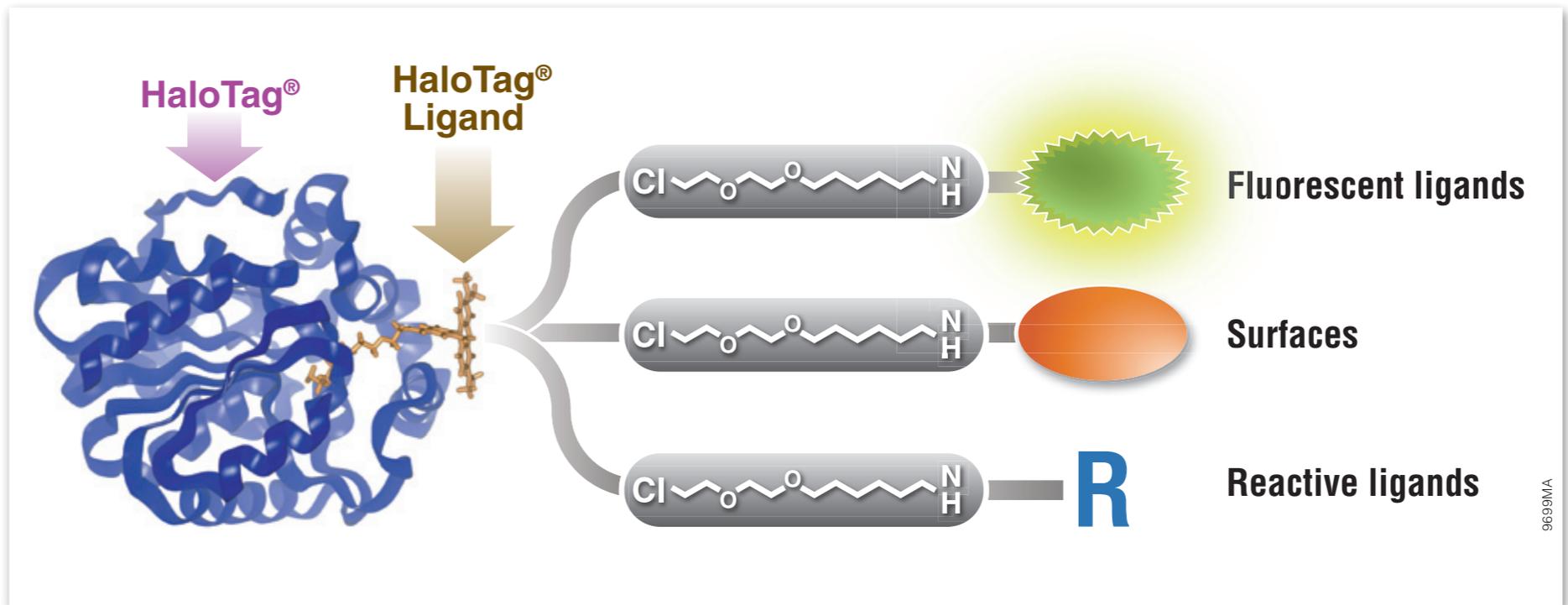


# *HaloTag<sup>®</sup> structure and the site of the covalent bond*



## HaloTag® ligands

*Many functionalities from a single fusion construct*



### Fluorescent ligands

- Multiple fluorophores
- Cell-permeable ligands
- Cell-impermeable ligands

### Solid surfaces

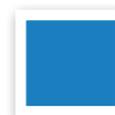
- Nonmagnetic resin
- Magnetic beads
- Customizable arrays

### Reactive & capture ligands

- Introduce novel functionalities with succinimidyl ester, amine, iodoacetamide and thiol reactive groups
- Tag and capture with biotin affinity groups



## More information



Protein purification...



Protein interactions...



Cellular imaging and labeling...

## Get started

PRODUCT	SIZE	CATALOG #
<b>HaloTag® Cloning Starter System</b>	1 each	G6050
<b>Validated HaloTag® human ORFs</b>	20µg DNA	Kazusa FHC Clones

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FLAG is a registered trademark of Sigma Aldrich.

