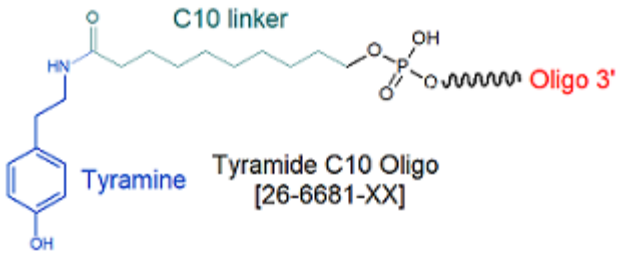
Oligo Modifications

Tyramide C10 Oligo-5'

Category	Affinity Ligands
Modification Code	Tyr-C10
Reference Catalog Number	26-6681
5 Prime	Y
3 Prime	N
Internal	N
Molecular Weight(mw)	370



Tyramide-conjugated DNA barcodes & Tyramide Signal Amplification See a report by Paul Simonson, Itzel Valencia, Sanjay S. Patel. Indexable signal amplification for multiparametric imaging. in bioRxiv preprint.

Multiparametric imaging allows researchers to measure the expression of many biomarkers simultaneously, allowing detailed characterization of cell microenvironments. One such technique, CODEX, allows fluorescence imaging of >30 proteins in a single tissue section. In the commercial CODEX system, primary antibodies are conjugated to DNA barcodes. This modification can result in antibody dysfunction, and development of a custom antibody panel can be very costly and time consuming as trial and error of modified antibodies proceeds. To address these challenges, we developed novel tyramide-conjugated DNA barcodes that can be used with primary antibodies via peroxidase-conjugated secondary antibodies. This approach results in signal amplification and imaging without the need to conjugate primary antibodies. When combined with commercially available barcode-conjugated primary antibodies, working antibody panels can be quickly developed. This report presents methods to perform antibody staining using a commercially available automated tissue stainer and in situ hybridization imaging on a CODEX platform.

In this report, they authors present a generalizable method for CODEX imaging with unmodified primary antibodies and signal amplification that uses novel tyramide-conjugated DNA barcodes (tyramide-barcodes). This allows the benefits of tyramide signal amplification, but image the targets in an indexed way using a commercial CODEX imaging system. This approach is flexible, and demonstrate that it can be used with in situ hybridization probes. In order to make this system workable, they developed a staining approach that allowed to perform both tyramide-barcode staining and standard CODEX staining using a commercially available automated tissue stainer, made possible using a custom coverslip holder. This drastically reduces the amount of manual labor required for CODEX staining and has the potential to improve staining reproducibility.

This modification is a post synthesis conjugation to an oligo with an active NHS group of Carboxy C10 modification.
Yield of Post Synthesis NHS, Maleimide & Click Ligand Conjugation* Oligo Scale of Synthesis Yield, nmols 50 nmol 2 nmol 200 nmol 5 nmol 1 umol 16 nmol 2 umol 30 nmol 5 umol 75 nmol 10 umol 150 nmol 15 umol 225 nmol * The yield will be lower for oligos longer than 50mer.

Click here for yield table of long oligos. * Click here for RNA Oligos scale of synthesis and yield. **NHS Ligand conjugation** requires a primary amino group. Gene Link offers a wide selection of amino modifications for 5', 3' and internal sites. Click here for a list of conjugation chemistry modifications. **Maleimide Ligand conjugation** requires a thiol group. Gene Link offers a wide selection of thiol modifications for 5', 3' and internal sites. Click here for a list of conjugation chemistry modifications. **Click Chemistry Ligand conjugation** requires a corresponding Click modification; examples Alkyne:Azide, Azide:DBCO, BCN:Azide, BCN: TCO:Tetrazine. Gene Link offers a wide selection of click modifications for 5', 3' and internal sites. Click here for a list of click chemistry modifications.