



Custom Oligo Synthesis, antisense oligos, RNA oligos, chimeric oligos,  
Fluorescent dyes, Affinity Ligands, Spacers & Linkers, Duplex Stabilizers,  
Minor bases, labeled oligos, Molecular Beacons, siRNA, phosphonates  
Locked Nucleic Acids (LNA); 2'-5' linked Oligos

## Oligo Modifications

For research use only. Not for use in diagnostic procedures for clinical purposes.

### Custom Column 3'

5'-Oligo

OH

O

Base

Degenerate Base

HO

O

Base

HO

O

Base

O

HO

O

Oligo 3'

IUB Codes

R=A+G;

Y=C+T;

M=A+C;

K=G+T;

S=G+C;

W=A+T;

H=A+T+C;

B=G+T+C;

D=G+A+T;

V=G+A+C;

N=A+C+G+T

Degenerate base (Mixed Base)

[26-6201-XX]

Custom column (3') is a set of special controlled pore glass (CPG) synthesis solid supports that are used for synthesizing oligonucleotides with degenerate (mixed-base) nucleotides at the 3'-end.

IUB (International Union of Biochemistry) has established single letter codes for all possible degenerate possibilities. An example is "R" that is A+G at the same position with 50% of the oligo sequence will have an A at that position, and the other 50% have G. A degenerate base position may have any combination of two, three, or four bases.

$$\begin{aligned} R &= A + G \\ Y &= C + T \\ M &= A + C \\ K &= G + T \\ S &= G + C \\ W &= A + T \\ H &= A + T + C \\ B &= G + T + C \\ D &= G + A + T \\ V &= G + A + C \\ N &= A + C + G + T \end{aligned}$$

**Alternate Oligo Design Strategies** The use of degenerate bases leads to complexity of oligo sequence and thus reduction in the percentage of the unique sequence. Consider the use of modifications such as Inosine that hybridizes to all four bases. See the listing of modifications as substitutes to reduce complexity if degenerate bases are used. Degenerate Base Modifications

Custom spiking is the addition of differing molar concentration of bases at a single position, this is different from degeneracy at a position based on codons. Codon based degeneracy is usually equimolar concentration of each base at the same position (done at no extra charge for all internal and 5' position, see order form for single letter IUB codes). Custom spiking (example, 10% A, 75% G, 5% C & 10% T) has to be specified as required on the order form. See the following link

[genelink.com/newsite/products/custspike.asp](http://www.genelink.com/newsite/products/custspike.asp) target="modwindow"><http://www.genelink.com/newsite/products/custspike.asp>

### **Spiking Custom**

Custom spiking is the addition of differing molar concentration of bases at a single position, this is different from degeneracy at a position based on codons. Codon based degeneracy is usually equimolar concentration of each base at the same position (done at no extra charge for all internal and 5' position, see order form for single letter IUB codes). Custom spiking (example, 10% A, 75% G, 5% C & 10% T) has to be specified as required on the order form.

Custom column has to be prepared when the degeneracy and custom spiking is at the 3' position. Customers who wish custom spiking at certain positions of their oligo must include the relevant specifics (position and spiking composition) in the comments section of the on-line order form for that particular oligo.