GenTarget Inc

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How to select the lentivirus products:

Product Selection Guideline for GenTarget's lentivirus:

Lentivirus category	Promoter types	Antibiotic marker	Fluorescent marker	Lentivirus formats
Target expression; Fluorescent markers; Common enzumes; Knockdown shRNA; microRNA; Anti miRNA	suCMV; Optional Tet inducible promoter; EF1a promoter; CAG promoter; Tissue or Pathway specific promoter;	Puromycin; Blasticidin; Neomycin; Hygromycin; Or No any antibiotic marker	GFP; RFP; CFP; BFP; YFP; niRFP;	Regular lentivirus in DMEM medium; Concentrated lentivirus in PBS; Ultra titer lentivirus in PBS;

For search GenTarget's target over-expression lentivirus:

You can search a product in the search field by input:

1. Search by **gene name**: for example, "**NR2E3**";
2. Search by gene **Alias names** or **gene_synonym** (alternative names): for example, "**PNR**",
3. Search by the gene's transcript **mRNA ID,** as NM_xxxxxx, for example, "**NM_014249**",

Or you simply open this ***Product Manual*** for all available over-expression lentivirus for human, mouse or rat' genes.

GenTarget provides all kinds of ready-to-use lentivirus products. Many cases, even for the same target, there are multiple products (many catalog numbers) to select. It seems a little confusion and hard to select which product to use. The following guidelines can help you narrow down the products for your need.

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1. **Lentivirus category**:
   First, you go for the lentivirus catagories, or go for a sepcific target / marker. GenTarget provides lentivirus for **Fluorescent markers, enzyme, specific gene over-expression or knockdown-shRNA, microRNA, anti-miRNA and others**. Each type of lentivirus has a general product manual. In that manual, you may see multiple products with different features for the same target. For example, "Luciferase product manual" or "Fluorescent protein manual". Then, you select the product based upon each product features, listed below.

2. **Promoter**: suCMV, inducible CMV (tetCMV), EF1a, or CAG promoter.
   GenTarget provide multiple products for the same target driven by different promoters, suCMV, tetCMV, EF1a, or CAG. You can pick the product driven by your desired promoter. In some products, the promoter can be a tissue specific, or pathway specific promoter.

   The suCMV promoter is the strongest promoter in most cell types for the highest over-expression. The tetCMV promoter is an optional inducible promoter (it became the inducible promoter only when its repressor, tetR is present). The EF1a promoter was modified with less tissue, cell type specificity (also no promoter-silencing effects during long-term cell culture), thus is active in all cell types. The CAG promoter has strong activity in embryonic cells, some neuron and some types of stem cells. If you do not have promoter preference, simply pick the products with CMV or EF1a promoter.

3. **Selection marker**: antibiotic marker and fluorescent marker.
   One important feature of lentivirus is that lentivirus provides long-term expression / knockdown because it integrates into cell's genome. To select the positive transduced cells, lentivirus often contains a fluorescent marker (for cell sorting) or /and an antibiotic marker (for killing selection).

   GenTarget's products are made with different antibiotic selection marker, **Blasticidin (Bsd), Puromycin (Puro), Neomycin (Neo), or Hygromycin (Hygro).** Some products also contain a fluorescent marker, **GFP, RFP, BFP, CFP or YFP**, and sometime an luminance marker (**luciferase**).

   Depend your preference with the selection marker, you pick the product containing your desired antibiotic marker, Bsd, or Puro or Neo or Hygro.

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If you need the product with a fluorescent marker as well, you pick the product with both antibiotic marker and fluorescent marker as your desired.

Each antibiotic has different killing curve in each cell type, which have to be tested prior to the antibiotic selection. Puromycin and Blasticidin has the "fast killing feature" (often in about one week). Most cell types are extremely sensitive to puromycin. So, you select the product with the antibiotic marker good for your positive cell selection..

Each fluorescent marker has different wavelength (Ex and Em). The fluorescent maker provides an easy transduction efficiency check (under Fluorescent-microscope) or cell selection (via FACS sorting). You pick the product having your desired fluorescent marker. All fluorescent markers in GenTarget's products, are engineered with the strongest signal intensity.

4. **Lentivirus formats**:
   GenTarget's lentivirus provides in three formats. You pick the virus depends on your application.
   1) **Regular lentivirus**: provided in DMEM medium with 10% FBS and pre-added polybrene (10x). It satisfies most application. Simply add the virus into your cell culture.
   2) **In vivo ready lentivirus**: provided in PBS solution with higher titer. It can be used for the cell types having low transduction efficiency (hard to infected cell types), or used for serum sensitive cell culture, like stem cell, or some primary cells.
   3) **Ultra titer lentivirus**: concentrated virus with ultra high titer (>=10^9 IFU/ml) provided in PBS. It best fits for in vivo manipulation for direct injection, gene-therapy research and application that requires extreme high titer lentivirus.