



TOUCLIGHT

THE MAKING OF DNA

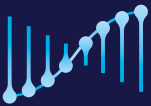
Enabling better genetic medicines with enzymatic DNA



WELCOME TO TOUCHLIGHT

Your DNA partner from development to commercialisation

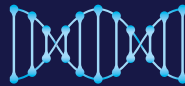
**GMP DNA VECTOR FOR
ALL ADVANCED THERAPIES**



mRNA



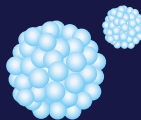
AAV



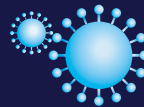
DNA vaccines



Genome editing



**Non-viral gene
therapy**



Lentivirus

Touchlight is a technology driven CDMO offering enzymatically produced DNA to enable your advanced therapy medicine development and commercialisation.

As the originators of doggybone DNA (dbDNA™), Touchlight produces DNA as an active pharmaceutical ingredient (API) or critical starting material for use in advanced therapy manufacturing, including mRNA and DNA vaccines, viral vector production (AAV and Lentivirus), non-viral gene therapy, and genome editing.

cGMP manufacturing facility

Touchlight's new building in Hampton, UK is the world's highest-capacity DNA manufacturing facility.

15 STATE-OF-THE-ART GMP SUITES

Flexible design to support scale-up and scale-out

ENHANCED FILLING CAPABILITY

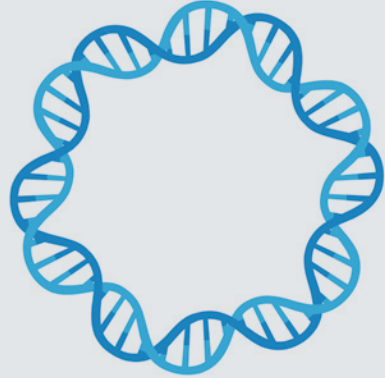
Ultra-low bioburden class B room with class A cabinet



Overcoming the challenges of plasmid DNA

Enzymatically produced DNA helps to overcome many of the ongoing challenges of plasmid DNA (pDNA) in advanced therapy medicinal products (ATMPs) by offering:

- Rapid pathway to GMP
- Short lead times for GMP reservation
- Improved safety profile – absence of antibiotic resistance genes
- Cell-free process for better quality DNA



What is enzymatic DNA?

Enzymatic DNA is manufactured in a cell free process using enzymes, rather than bacterial cells. It is produced in simply equipped GMP clean-rooms offering a cleaner product (in terms of antibiotic resistance genes, hcProtein, hcDNA) rapid scale-up and scale-out. The process avoids lengthy strain development, purification development and cell banking.



Touchlight's proprietary doggybone DNA (dbDNA™)

A better vector with rapid GMP manufacturing

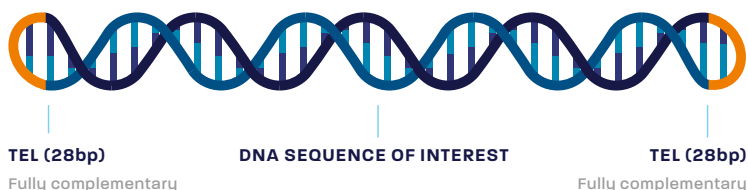
Touchlight's proprietary doggybone DNA (dbDNA™) is a linear, double stranded, covalently closed DNA vector, produced through an enzymatic manufacturing process.

It can incorporate genes from 500bp to 20kb making it very flexible to support a range of genetic medicines including mRNA, DNA vaccines and viral vectors.

Leveraging its ability to amplify any circular DNA template using a proprietary *in vitro* enzymatic technology, doggybone DNA outperforms plasmid DNA in terms of **speed, scalability, and safety**.

It enables scalable DNA production in weeks, rather than the months taken to make plasmid DNA using traditional *E. coli* fermentation methods.

dbDNA™ A linear, double-stranded, covalently closed DNA vector



KEY ADVANTAGES

Better DNA vector

- ✓ No bacterial backbone
- ✓ Higher gene copy per gram
- ✓ Improved expression
- ✓ Improved safety profile
- ✓ Reduced DNA per transfection

Simple and rapid manufacturing

- ✓ Rapid path to GMP
- ✓ Fast production time
- ✓ Simple scale up and scale out (versus plasmid)
- ✓ Single use product contact materials

doggybone DNA –

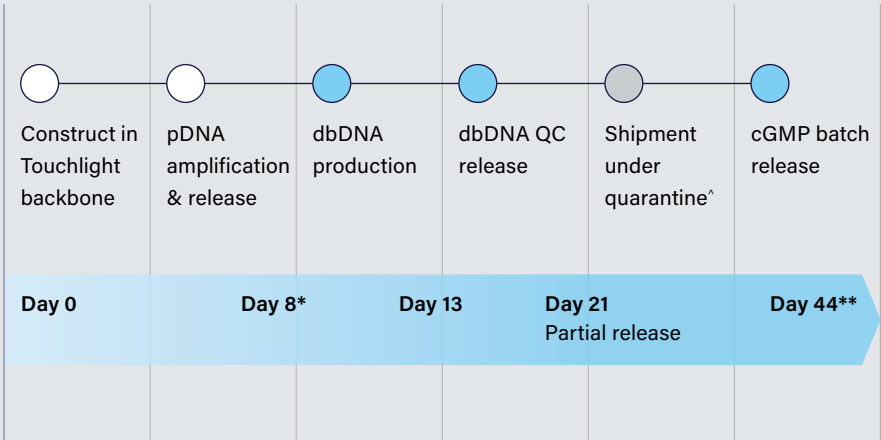
a simple and rapid path to GMP

Touchlight's DNA manufacturing platform enables multi-gram DNA production in weeks, rather than the months taken to make plasmid DNA using traditional *E. coli* fermentation methods.

GMP resupply in only 3 weeks.



STANDARD TIMELINE TO GMP



^ Quarantine shipment subject to concession note

* pDNA amplification & release will be longer for large batches

** Optional sterility testing will extend the time to batch release



How is doggybone DNA made?

1

Small quantity of template **pDNA** produced and tested

2

Rolling circle amplification using **phi 29 DNA polymerase**

3

The **linear DNA** is cleaved and **covalently closed**

4

Restriction enzymes and exonucleases degrade the backbone sequences

5

Column chromatography and **final filtration** at 0.2 μ m

6

QC release testing

Optional cleavage of the **3' end** as starting material for IVT

Access doggybone DNA in different ways

- Off-the-shelf catalogue products
- Custom sequences from 5mg to 2.5g (non-GMP)
- cGMP material 100mg to 5g batches
 - Optional ultra-low bioburden filling and sterility testing
- License and royalty free (when Touchlight manufacture)

HOW YOU CAN WORK WITH US



CATALOGUE CONSTRUCTS

- Off the shelf constructs
- A quick check to see how dbDNA™ performs in your hands



RUO SMALL SCALE

- Custom supply mg dbDNA™
- A low cost approach to assess your product in the dbDNA™ platform



TOX & GMP MATERIAL

- Development and manufacture
- Flexibility to meet changing project demands



cGMP supply

doggybone DNA (dbDNA™) can be supplied as a critical starting material for GMP Advanced Therapy Medicinal Product (ATMP) manufacture or as an Active Pharmaceutical Ingredient (API). cGMP system has been defined in accordance with EU cGMP Part II.

QUALITY

	Research Grade	SMart-GMP Grade	GMP Grade
Release documentation	CoT	CoA	CoA
QC Certified Release	x	x	x
Storage of retain sample included	x	x	x
Sequencing	Optional	x	x
Animal Derived Component Free		x	x
TSE/BSE Statement		x	x
Material Management		x	x
Manufacturing Controls		x	x
Document Control		x	x
QA Review		Partial	x
Manufacture under Quality Technical Agreement			x
Batch Pack			x
Classified Facility			x
Ultra-low bioburden fill			Optional

3 ways to get started with doggybone DNA



**Send your
GenBank
sequence**



**Send 50µg of your
plasmid DNA**



**Touchlight shares
backbone to
enable you to
clone internally**



Off-the-shelf catalogue products

Get started quickly with off-the-shelf constructs available for initial evaluation and testing in your advanced therapy platform. Matching plasmid is available for comparison studies.

HDR TEMPLATE DONORS AND REPORTER CONSTRUCTS

Product name	Description	Quantity (approx.mg)	Concentration (mg/mL)
TRAC-eGFP	TRAC locus-targeting promoterless eGFP HDR knock-in template	0.5	4
TRAC-CD19 CAR	TRAC locus-targeting promoterless CD19 CAR HDR knock-in template	0.5	4
CMV-Lux	Firefly luciferase	0.5	2
CMV-TE-eGFP	Enhanced GFP	0.5	4
CAG-Lux	Firefly luciferase	0.5	2
CAG-Lux-2A-eGFP	Firefly luciferase-2A-enhanced GFP	0.5	2
CAG-eGFP	Enhanced GFP	0.5	4
CAG-hFIX	Factor IX secretory protein	0.5	2

AAV & LENTIVIRUS

AAV bundle	Rep2Cap2, Helper & Lux-2A-eGFP Transgene
Lentivirus bundle	Rev, GagPol, VSVg & eGFP Transgene

Bundle products also available individually.



TOUCHLIGHT

About Touchlight

Touchlight is a privately-owned company based in London, U.K., focused on the provision of DNA services and manufacture of enzymatically produced novel DNA formats, such as doggybone DNA (dbDNA™) to enable the development of genetic medicines.

Touchlight DNA services provide rapid, enzymatic DNA development and manufacturing for all advanced therapy production, including mRNA, viral and non-viral gene therapy and DNA API.

Touchlight

Morelands & Riverdale Buildings
Lower Sunbury Road, Hampton, TW12 2ER

www.touchlight.com

info@touchlight.com