

SAFETY DATA SHEET



Product Name T7 Expression Kit
Product Number 505024, 505096
Kit Components LS70 Master Mix
pXTL-P70a-T7rnap HP 24 Rxn or 96 Rxn
pXTL-T7p14-deGFP HP 10 Rxn

1. COMPANY AND PRODUCT IDENTIFICATION

Kit Component Name LS70 Master Mix
Product Number n/a

Recommended use For research use only
Uses advised against No information available

Supplier Address Arbor Biosciences
5840 Interface Drive, Suite 101
Ann Arbor, MI 48103
USA

Email info@arborbiosci.com
Phone + 1 (734) 998-0751

Emergency Phone Number +1 (800) 222-1222 (American Association of Poison Control Centers)
Available 24 hours everyday

2. HAZARD(S) IDENTIFICATION

Emergency Overview

Low hazard for usual industrial or commercial handling. Handle in accordance with good industrial hygiene and safety practice.

Appearance Clear, slightly amber
Physical State Liquid
Odor Odorless

Target organs None known

Principle Routes of Exposure

Acute Toxicity

Inhalation Low hazard for usual industrial or commercial handling.
Eyes Redness. May cause slight irritation.

Skin Prolonged contact may cause redness and irritation. Repeated exposure may cause skin dryness or cracking.

Ingestion Harmful if swallowed.

Chronic Effects

Chronic Toxicity No information available

Symptoms No information available

Aggravated Medical Conditions Not known

Environmental Hazard

See Section 12: ECOLOGICAL INFORMATION

3. COMPOSITION/INFORMATION ON INGREDIENTS

LS70 Master Mix is a mixture of hazardous substances and non-hazardous substances. The exact concentration percentages of those substances may be withheld as an Arbor Bioscience trade secret.

Component	CAS-No	%
Tris base	77-86-1	1-5
Potassium acetate	127-08-2	1-5
Magnesium acetate	142-72-3	1-5
Substance 1-31	Trade Secret	97-85

4. FIRST-AID MEASURES**General Advice**

Immediate medical attention is required. In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). Remove from exposure, lie down. Do not breathe dust/fume/gas/mist/vapors/spray.

Eye Contact

Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Skin Contact

Wash skin with soap and water.

Inhalation

Remove to fresh air. If breathing is difficult, give oxygen. Get medical attention immediately if symptoms occur.

Ingestion

Clean mouth with water and drink afterwards plenty of water.

Note to Physician

Treat symptomatically.

5. FIRE-FIGHTING MEASURES**Suitable Extinguishing Media**

Substance is non-flammable. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media

CAUTION: Use of water spray when fighting fire may be inefficient.

Specific Hazards Arising from the Chemical

Thermal decomposition can lead to release of irritating gases and vapors.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health Hazards 0**Flammability** 0**Stability** 0**Special Hazard** N/A**6. ACCIDENTAL RELEASE MEASURES****Personal Precautions**

Ensure adequate ventilation, especially in confined areas. Avoid contact with skin, eyes and clothing.

Personal Protective Equipment [PPE]

Use personal protection recommended in Section 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Environmental Precautions

Should not be released into the environment.

Methods for Containment

Prevent further leakage or spillage if safe to do so.

Methods for Cleaning Up

Soak up with inert absorbent material. Pick up and transfer to properly labeled containers. This material and its container must be disposed of as hazardous waste.

7. HANDLING AND STORAGE**Advice on Safe Handling**

Handle in accordance with good industrial hygiene and safety practice.

Storage Temperature

Refer to Product Manual available at www.arborbiosci.com for specific information.

Storage Conditions

Keep/store only in original container. Keep tightly closed in a dry and cool place.

Incompatible Materials

None known based on information supplied.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Engineering Measures**

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Exposure Guidelines

This product does not contain any hazardous materials.

Personal protective equipment (PPE)

Refer to OSHA`s regulations in 29 CFR 1910.133 or European Standard EN166 for eye/face protection and 29 CFR 1910.134 or European standard EN149 for respiratory protection.

Eye/face Protection

Wear safety glasses with side shields (or goggles).

Skin and Body Protection

Wear suitable protective clothing and gloves.

Respiratory Protection

Use in well ventilated areas.

General Hygiene Considerations

Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical State Liquid
 Appearance Clear, slightly amber
 Oder Odorless

Property

	Notes/Method
pH	8.0 at 20 °C (68 °F)
Melting Point/Freezing Point	No information available
Boiling Point/Boiling Range	100 °C (212 °F)
Flash Point	Not applicable
Evaporation Rate	No information available
Flammability (solid, gas)	Not applicable
Flammability Limit in Air	Not applicable
Upper Flammability Limit	Not applicable
Lower Flammability Limit	Not applicable
Vapor Pressure	No information available
Vapor Density	No information available
Relative Density	No information available
Specific Gravity	No information available
Water solubility	No information available
Solubility in Other Solvents	No information available
Partition Coefficient	No information available
Autoignition Temperature	Product Is not self-igniting
Decomposition Temperature	No information available
Kinematic Viscosity	No information available
Dynamic Viscosity	No information available
Explosive Properties	Not explosive
Oxidizing Properties	Not oxidizing

Other Information

Softening Point	No information available
Molecular Weight	Not applicable

VOC Content (%)	Not applicable
Density	Not applicable
Bulk Density	No information available

10. STABILITY AND REACTIVITY

Reactivity

No data available.

Stability

Stable under Normal Conditions.

Possibility of Hazardous Reactions

Non under normal processing.

Conditions to Avoid

Incompatible materials. Ignition sources. Heat. Exposure to air or moisture over prolonged periods.

Incompatible Materials

Strong Oxidizing Agents.

Hazardous Decomposition Products

None known

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Product Information

Product does not present an acute toxicity hazard based on known or supplied information.

Inhalation

Avoid breathing vapors or mists. May cause irritation of respiratory tract.

Eye Contact

Redness. May cause slight irritation.

Skin Contact

Prolonged contact may cause redness and irritation. Repeated exposure may cause skin dryness or cracking.

Ingestion

May cause drowsiness or dizziness. Ingestion causes burns of the upper digestive and respiratory tracts. Symptoms include burning sensation, coughing, wheezing, shortness of breath, headache, nausea, and vomiting.

Chronic Toxicity

Skin Corrosion/Irritation

Mild

Serious Eye Damage/Eye Irritation

Mild

Irritation

Mild

Corrosivity

Mild

Sensitization

Skin

No information available

Respiratory

No information available

Germ Cell Mutagenicity

No information available

Carcinogenicity

No information available

Reproductive Toxicity

No information available

<i>Developmental Toxicity</i>	No information available
<i>Teratogenicity</i>	No information available
<i>STOT - Single Exposure</i>	No information available
<i>STOT - Repeated Exposure</i>	No information available
<i>Chronic Toxicity</i>	No information available
<i>Subchronic Toxicity</i>	No information available
<i>Target Organ Effects</i>	Kidneys, Respiratory system, Eyes, Skin.
<i>Neurological Effects</i>	No information available
<i>Other Adverse Effects</i>	The toxicological properties have not been fully investigated.
<i>Aspiration Hazard</i>	No information available

12. ECOLOGICAL INFORMATION

Ecotoxicity (aquatic and terrestrial)

Do not empty into drains.

Persistence and Degradability

No information available

Bioaccumulative Potential

No information available

Mobility in Soil

No information available

Other Adverse Effects

Ozone depletion potential (ODP)

No information available

13. DISPOSAL CONSIDERATIONS

Relevant Information

Keep out of drains, sewers, ditches and waterways.

Disposal Considerations

Use a licensed professional waste disposal service to dispose of this product.
Product may be dissolved in a combustible solvent or absorbed onto a combustible material and burned by a chemical incinerator.

Contaminated Packaging

Empty containers must be tripled rinsed prior to disposal.

14. TRANSPORT INFORMATION

DOT	Not regulated
TDG	Not regulated
MEX	Not regulated
ICAO (air)	Not regulated
IATA	Not regulated
IMDG	Not regulated
RID	Not regulated
ADR	Not regulated

AND Not regulated

15. REGULATORY INFORMATION

International Inventories

TSCA	Complies
DSL	Complies
NDSL	Complies

Legend

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

<i>Acute health hazard</i>	No
<i>Chronic Health Hazard</i>	No
<i>Fire hazard</i>	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

International Regulations

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

16. OTHER INFORMATION

Training advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Prepared by Arbor Biosciences
+1 (734) 998-0751

Creation Date	6/19/2019
Revision Date	6/19/2019
Version	01
Revision Note	SDS is valid three (3) years from revision date. Contact info@arborbiosci.com for latest revision.

1. COMPANY AND PRODUCT IDENTIFICATION

Component Name	pTXTL-P70a-T7rnap HP 24 Rxn or 96 Rxn pTXTL-T7p14-deGFP HP 10 Rxn
Product Number	502134/502135 (pTXTL-P70a-T7rnap HP 24/96 Rxn) 502136 (pTXTL-T7p14-deGFP HP 10 Rxn)
Recommended use	For research use only
Uses advised against	No information available
Supplier Address	Arbor Biosciences 5840 Interface Drive, Suite 101 Ann Arbor, MI 48103 USA
Email	info@arborbiosci.com
Phone	+ 1 (734) 998-0751
Emergency Phone Number	+1 (800) 222-1222 (American Association of Poison Control Centers) Available 24 hours everyday

2. HAZARD(S) IDENTIFICATION

Emergency Overview

Minor hazard for usual industrial or commercial handling. Handle in accordance with good industrial hygiene and safety practice.

Appearance	Colorless
Physical State	Liquid
Odor	Odorless

Target organs	None known
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Principle Routes of Exposure

Acute Toxicity

<i>Inhalation</i>	Minor hazard for usual industrial or commercial handling.
<i>Eyes</i>	Redness. May cause slight irritation.
<i>Skin</i>	Prolonged contact may cause redness and irritation. Repeated exposure may cause skin dryness or cracking.
<i>Ingestion</i>	Low hazard for usual industrial or commercial handling.

Chronic Effects

<i>Chronic Toxicity</i>	No information available
<i>Symptoms</i>	No information available
<i>Aggravated Medical Conditions</i>	Not known

Environmental Hazard

See Section 12: ECOLOGICAL INFORMATION

3. COMPOSITION/INFORMATION ON INGREDIENTS

Plasmid vectors pTXTL-P70a-T7rnap HP 24 Rxn, pTXTL-P70a-T7rnap HP 96 Rxn and pTXTL-T7p14-deGFP HP 10 Rxn are dissolved in nuclease-free, molecular biology-grade water.

Component	CAS-No	%
Deoxyribonucleic acids	9007-49-2	99

4. FIRST-AID MEASURES**General Advice**

Immediate medical attention is required. In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). Remove from exposure, lie down. Do not breathe dust/fume/gas/mist/vapors/spray.

Eye Contact

Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Skin Contact

Wash skin with soap and water.

Inhalation

Remove to fresh air. If breathing is difficult, give oxygen. Get medical attention immediately if symptoms occur.

Ingestion

Clean mouth with water and drink afterwards plenty of water.

Note to Physician

Treat symptomatically.

5. FIRE-FIGHTING MEASURES**Suitable Extinguishing Media**

Substance is non-flammable. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media

CAUTION: Use of water spray when fighting fire may be inefficient.

Specific Hazards Arising from the Chemical

Thermal decomposition can lead to release of irritating gases and vapors.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA **Health Hazards** 0 **Flammability** 0 **Stability** 0 **Special Hazard** N/A

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions

Ensure adequate ventilation, especially in confined areas. Avoid contact with skin, eyes and clothing.

Personal Protective Equipment [PPE]

Use personal protection recommended in Section 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Environmental Precautions

Should not be released into the environment.

Methods for Containment

Prevent further leakage or spillage if safe to do so.

Methods for Cleaning Up

Soak up with inert absorbent material. Pick up and transfer to properly labeled containers. This material and its container must be disposed of as hazardous waste.

7. HANDLING AND STORAGE**Advice on Safe Handling**

Handle in accordance with good industrial hygiene and safety practice.

Storage Temperature

Refer to Product Manual available at www.arborbiosci.com for specific information.

Storage Conditions

Keep/store only in original container. Keep tightly closed in a dry and cool place.

Incompatible Materials

None known based on information supplied.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Engineering Measures**

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Exposure Guidelines

This product does not contain any hazardous materials.

Personal protective equipment (PPE)

Refer to OSHA`s regulations in 29 CFR 1910.133 or European Standard EN166 for eye/face protection and 29 CFR 1910.134 or European standard EN149 for respiratory protection.

Eye/face Protection

Wear safety glasses with side shields (or goggles).

Skin and Body Protection

Wear suitable protective clothing and gloves.

Respiratory Protection

Use in well ventilated areas.

General Hygiene Considerations

Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical State Liquid
 Appearance Colorless
 Odor Odorless

Property**Notes/Method**

pH	Not applicable
Melting Point/Freezing Point	No information available
Boiling Point/Boiling Range	100 °C (212 °F)
Flash Point	Not applicable
Evaporation Rate	No information available
Flammability (solid, gas)	Not applicable
Flammability Limit in Air	Not applicable
Upper Flammability Limit	Not applicable
Lower Flammability Limit	Not applicable
Vapor Pressure	No information available
Vapor Density	No information available
Relative Density	No information available
Specific Gravity	No information available
Water solubility	No information available
Solubility in Other Solvents	No information available
Partition Coefficient	No information available
Autoignition Temperature	Product Is not self-igniting
Decomposition Temperature	No information available
Kinematic Viscosity	No information available
Dynamic Viscosity	No information available
Explosive Properties	Not explosive
Oxidizing Properties	Not oxidizing

Other Information

Softening Point	No information available
Molecular Weight	No information available
VOC Content (%)	No information available
Density	No information available
Bulk Density	No information available

10. STABILITY AND REACTIVITY**Reactivity**

No data available.

Stability

Stable under Normal Conditions.

Possibility of Hazardous Reactions

Non under normal processing.

Conditions to Avoid

Incompatible materials. Ignition sources. Heat. Exposure to air or moisture over prolonged periods.

Incompatible Materials

Strong Oxidizing Agents.

Hazardous Decomposition Products

None known

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Product Information

Product does not present an acute toxicity hazard based on known or supplied information.

Inhalation

Avoid breathing vapors or mists. May cause irritation of respiratory tract.

Eye Contact

Redness. May cause slight irritation.

Skin Contact

Prolonged contact may cause redness and irritation. Repeated exposure may cause skin dryness or cracking.

Ingestion

May cause drowsiness or dizziness. Ingestion causes burns of the upper digestive and respiratory tracts. Symptoms include burning sensation, coughing, wheezing, shortness of breath, headache, nausea, and vomiting.

Chronic Toxicity

<i>Skin Corrosion/Irritation</i>	Mild
<i>Serious Eye Damage/Eye Irritation</i>	Mild
<i>Irritation</i>	Mild
<i>Corrosivity</i>	Mild
<i>Sensitization</i>	
Skin	No information available
Respiratory	No information available
<i>Germ Cell Mutagenicity</i>	No information available
<i>Carcinogenicity</i>	No information available
<i>Reproductive Toxicity</i>	No information available
<i>Developmental Toxicity</i>	No information available
<i>Teratogenicity</i>	No information available
<i>STOT - Single Exposure</i>	No information available
<i>STOT - Repeated Exposure</i>	No information available
<i>Chronic Toxicity</i>	No information available
<i>Subchronic Toxicity</i>	No information available
<i>Target Organ Effects</i>	Kidneys, Respiratory system, Eyes, Skin.
<i>Neurological Effects</i>	No information available
<i>Other Adverse Effects</i>	The toxicological properties have not been fully investigated.
<i>Aspiration Hazard</i>	No information available

12. ECOLOGICAL INFORMATION

Ecotoxicity (aquatic and terrestrial)

Do not empty into drains.

Persistence and Degradability

No information available

Bioaccumulative Potential

No information available

Mobility in Soil

No information available

Other Adverse Effects*Ozone depletion potential (ODP)*

No information available

13. DISPOSAL CONSIDERATIONS**Relevant Information**

Keep out of drains, sewers, ditches and waterways.

Disposal Considerations

Use a licensed professional waste disposal service to dispose of this product.

Product may be dissolved in a combustible solvent or absorbed onto a combustible material and burned by a chemical incinerator.

Contaminated Packaging

Empty containers must be tripled rinsed prior to disposal.

14. TRANSPORT INFORMATION

DOT	Not regulated
TDG	Not regulated
MEX	Not regulated
ICAO (air)	Not regulated
IATA	Not regulated
IMDG	Not regulated
RID	Not regulated
ADR	Not regulated
AND	Not regulated

15. REGULATORY INFORMATION**International Inventories**

TSCA	Complies
DSL	Complies
NDSL	Complies

Legend**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List**US Federal Regulations**

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

<i>Acute health hazard</i>	No
<i>Chronic Health Hazard</i>	No
<i>Fire hazard</i>	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

International Regulations**Canada**

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

16. OTHER INFORMATION**Training advice**

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Prepared by	Arbor Biosciences +1 (734) 998-0751
Creation Date	6/19/2019
Revision Date	6/19/2019
Version	01
Revision Note	SDS is valid three (3) years from revision date. Contact info@arborbiosci.com for latest revision.

Disclaimer

IMPORTANT: The information in this SDS is provided in good faith based on our knowledge as of the creation date (or subsequent revision date, if any), and is to be used only as a guide. This SDS does not constitute a guarantee (express or implied) of any kind and we make no warranties or merchantability or fitness for a particular purpose. This information relates only to the designated product as shipped and may not be valid if the product is used in combination with any other materials or is not used in accordance with our instructions. It is the responsibility of the buyer/user to ensure

that its activities comply with all applicable governmental requirements. Since conditions of use of the product are not under the control of Arbor Biosciences, it is the duty of the buyer/user to determine the necessary conditions for the safe use of the product. Arbor Biosciences will not be liable for any damages resulting from handling or contact with the product.

End of Safety Data Sheet