



Catalog # **RTS01-E011-100**  
Aliquot Size **100 reactions**

## Super Mix For qPCR (+gDNA Wiper)

Catalog # **RTS01-E011**

Lot # **A4647-9**

### Product Description

Super Mix for qPCR (+gDNA Wiper) is a reverse transcriptase kit for cDNA synthesis in qPCR applications. It includes a gDNA wiper solution for completely removing residual genomic DNA from the RNA template, ensuring more reliable quantitative results.

**This product is manufactured in an ISO 9001 and ISO 13485 certified facility.**

### Components

	Component Name	100 reactions
	5X Super Mix RT <sup>a</sup>	400 µl
b	4X gDNA wiper Mix	400 µl
c	RNase-free ddH <sub>2</sub> O	2 x 1ml
d	5X No RT Control Mix <sup>b</sup>	40 µl

a. Contains Buffer, dNTP, Reverse Transcriptase, RNase inhibitor, Random primers/Oligo (dT)<sub>20</sub>VN primer Mix.

b. Used for No RT control preparation; does not contain reverse transcriptase. Except for Reverse Transcriptase, other components are the same as 5X Super Mix RT

### Storage and Stability

Store at -30°C to -15°C. To avoid repeated handling and multiple freeze/thaw cycles aliquot product into smaller quantities.

### Scientific Background

Super Mix for qPCR (+gDNA Wiper) consists of an upgraded reverse transcriptase (RT) in an optimized buffer. This system further improves the efficiency of cDNA synthesis and is suitable for two-step qRT-PCR detection. The 4X gDNA wiper Mix in the kit can remove residual genomic DNA from the RNA template, ensuring more reliable quantitative results. It simplifies qPCR primer design without the need to design primers across introns. 5X Super Mix RT contains all components required for the reverse transcription reaction and can be started rapidly after the addition of template RNA and RNase-free ddH<sub>2</sub>O. This product is suitable for reverse transcription of animal, plant and microbial RNA, and the reaction products are compatible with dye-based and probe-based qPCR, enabling high-performance gene expression analysis.

## Super Mix For qPCR (+gDNA Wiper)

Catalog # **RTS01-E011**  
Lot # **A4647-9**  
Stability **1yr from date of shipment at -30°C to -15°C**  
Storage & Shipping **Store at -30°C to -15°C. Transport at ≤0 °C. To avoid repeated handling and multiple freeze/thaw cycles aliquot product into smaller quantities.**

To place your order, please contact us by phone 1-778-326-0223 or 1-888-606-3424 (Toll free) or by email: [orders@signalchemdx.com](mailto:orders@signalchemdx.com) or [info@signalchemdx.com](mailto:info@signalchemdx.com) - [www.signalchemdx.com](http://www.signalchemdx.com)

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# cDNA Synthesis Protocol

## Self-Prepared Materials:

### Materials:

- RNase-free centrifuge tube (1.5 mL), RNase-free PCR tube (0.2 mL), RNase-free tips
- Pipette, PCR instrument, ice, or ice box

### RNA:

- High quality RNA is essential for obtaining high quality cDNA. Please verify the RNA integrity by electrophoresis before the experiment

### qPCR Reagent Selection Guide:

- The 1st strand cDNA product can be used as the template for qPCR directly. For PCR, it is recommended that the volume of the template cDNA product should not exceed 1/10 of the total volume of qPCR reaction.

### Note:

1. The 4X gDNA wiper Mix, 5X Super Mix RT and 5X No RT Control Mix contain high concentrations of glycerol. Please centrifuge briefly and pipette up and down to mix thoroughly before use.
2. It is recommended to add no more than 1 µg of total RNA to the 20 µL reverse transcription reaction system. If the target is a gene with low expression levels, the amount of total RNA can be up to 5 µg. Otherwise, if the amount of RNA added is too high, it may exceed the linear range of subsequent qPCR.
3. The cDNA products are only suitable for qPCR reactions and not suitable for long-fragment PCR amplification of downstream experiments such as cloning.
4. Reverse transcription can be performed directly with 5X Super Mix RT without the genome removal step if there is no need to remove the genomic DNA. But do not use the 4X gDNA wiper Mix without the 5X Super Mix RT Reverse Transcription reaction module as the 5X Super Mix RT mixture contains components to terminate the gDNA wiper reaction, which may affect subsequent qPCR results.

## Protocol:

### 1. Removal of genomic DNA:

Mix the following components in an RNase-free centrifuge tube:

Component	Amount
RNase-free ddH <sub>2</sub> O	to 16 µl
4X gDNA wiper Mix	4 µl
Template RNA	Total RNA: 1 pg - 1 µg

Mix gently with a pipette and incubate at 42 °C for 2 min.

### 2. Preparation of Reverse Transcription Reaction Mixture:

Add Super Mix RT to the mixture from the previous step:

Component	Amount
5X Super Mix RT	4 µl
Mixture from Step 1	16 µl

Mix gently with a pipette.

### No RT Control Reaction (Optional)

No RT Control Reaction is a negative control which contains no Reverse Transcriptase and is used to indicate whether there is residual genomic DNA in RNA template.

Component	Amount
5X No RT Control Mix	4 µl
Mixture from Step 1	16 µl

Mix gently with a pipette.

### 3. Perform the reverse transcription reaction under the following conditions:

37 °C*	15 min
85 °C	5 sec

\* For templates with complex secondary structures or high GC content, the temperature can be increased to 50°C, which will benefit the yield.

The product can be directly used in qPCR reactions or be stored at -20°C for up to 6 months. It is recommended to store cDNA in aliquots at -70°C for long term storage, and to avoid repeated freezing and thawing.

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# SAFETY DATA SHEET

## Article 1 - Product Identification

**Product Name: Super Mix For qPCR (+gDNA Wiper)**
**Catalog # RTS01-E011**

*This product is sold only for research use by qualified laboratory personnel, and is not to be used as a drug, medical device, food additive, cosmetic, nor household chemical. It is not to be used in diagnostic, therapeutic, consumer, agricultural, nor pesticidal applications.*

Supplier of Datasheet: SignalChem Diagnostics Inc.  
 Street Address: 190-13160 Vanier Place  
 City, Prov. Postal Code: Richmond, BC, V6V 2J2  
 Country: Canada  
 Emergency Phone: 1-888-606-3424 (Toll free)  
 1-778-326-0223 (local)

## Article 2 - Hazard Identification

- **WHMIS Classification:** Not WHMIS controlled.
- **GHS classification:** Not GHS classified.
- **Hazard Pictograms:** No labelling applicable.
- **Signal words:** None.
- **Hazard statements:** None.
- **Precautionary statements:** Wear protective gloves/protective clothing/eye protection/ face protection. Avoid breathing dust. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- **Other hazards:** May cause eye and skin irritation. May cause respiratory and digestive tract irritation.

## Article 3 – Composition/Information on Ingredients

**Description:** This product consists of the components listed below.

**Component:** 4X gDNA wiper Mix

**Chemical Characterization:** Mixture.

Common name	Chemical name	CAS-No.	Concentration
Glycerol	Glycerol	56-81-5	≤40%
Magnesium chloride hexahydrate	Cl <sub>2</sub> H <sub>12</sub> MgO <sub>6</sub>	7791-18-6	≤1%

**Component:** RNase-free ddH<sub>2</sub>O

Common name	Chemical name	CAS-No.	Concentration
Water	H <sub>2</sub> O	7732-18-5	100%

**Component:** 5X Super Mix RT

Common name	Chemical name	CAS-No.	Concentration
Glycerol	Glycerol	56-81-5	≤40%
Tris	Tris(hydroxymethyl)aminomethane	77-86-1	≤15%

**Component:** 5X No RT Control Mix

Common name	Chemical name	CAS-No.	Concentration
Glycerol	Glycerol	56-81-5	≤40%
Tris	Tris(hydroxymethyl)aminomethane	77-86-1	≤15%

## Article 4 – First-aid Measures

- **General information:** Consult a physician by providing the SDS.
- **After inhalation:** In case of irritation by inhaling this product, move affected person to fresh air and await recovery. If irritation persists, seek immediate medical attention. If casualty cannot breathe, give artificial respiration and seek immediate medical attention.
- **After skin contact:** Immediately wash with soap and plenty of water and rinse thoroughly. Consult a physician.
- **After eye contact:** Rinse opened eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do so. Consult a physician.
- **After swallowing:** Induce vomiting. If indisposition continues, seek medical attention.

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## Article 5 - Fire-fighting Measures

- **Suitable extinguishing media:** Use water spray, extinguishing powder, carbon dioxide, or other appropriate measure that is suitable to the environment.
- **Specific hazards arising from the substance or mixture:** None known.
- **Special protective equipment and precautions for fire-fighters:** Self-contained breathing apparatus if necessary.

## Article 6 – Accidental Release Measures

- **Personal precautions, protective equipment, and emergency procedures:** Apply standard laboratory practices and personal protective equipment. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation.
- **Environmental precautions:** Do not allow to enter drains. Do not discharge directly into sewers.
- **Methods and materials for containment and cleaning up:** Absorb on sand or vermiculite and place in closed containers for disposal.

## Article 7 - Handling and Storage

- **Precautions for safe handling:** Wear chemical safety goggles and compatible chemical-resistant gloves. Avoid inhalation, contact with eyes, skin or clothing.
- **Conditions for safe storage:** Store according to product label instructions. Keep container upright and tightly closed.

## Article 8 - Exposure Controls/Personal Protection

- **Components with limit monitoring values at workplace:**  
Glycerol (CAS-No: 56-81-5)

Values	Control parameters	Regulations
TWA	10 mg/m <sup>3</sup> for mist	British Columbia, Canada
TWA	3 mg/m <sup>3</sup> for respirable mist	British Columbia, Canada
TWA	10 mg/m <sup>3</sup>	Alberta, Canada
TWAEV	10 mg/m <sup>3</sup>	Ontario, Canada
TWAEV	10 mg/m <sup>3</sup>	Quebec, Canada
TWA	10 mg/m <sup>3</sup>	USA

- **Appropriate engineering controls:**  
Apply adequate ventilation including mechanical exhaust or laboratory fume hood. Follow standard laboratory practices.
- **Individual protection measures:**  
**Respiratory protection:**  
Use appropriate respirator if there is inadequate ventilation by following the government standards.  
**Hand protection:**  
Wear gloves and use proper glove removal technique to avoid skin contact. Discard gloves after use by following the applicable laboratory regulations. Wash and dry hands.  
**Eye/face protection:**  
Safety goggles with side-shields approved under appropriate government standards.  
**Skin/body protection:**  
Use appropriate clothing, footwear and any additional protection measures to protect from splashing or contamination.

## Article 9 – Physical and Chemical Properties

Component: 4X gDNA wiper Mix

<b>Appearance:</b> Colorless liquid.	<b>Danger of explosion:</b> Product does not present an explosion hazard.
<b>Odour/Odour Threshold:</b> Not determined.	<b>Explosion limits:</b> Not determined.
<b>pH:</b> Not determined.	<b>Decomposition temperature:</b> Not determined.
<b>Melting point/freezing point:</b> Not determined.	<b>Vapor pressure at 20 °C:</b> Not determined.
<b>Boiling point/Boiling range:</b> Not determined.	<b>Density:</b> Not determined.
<b>Flash point:</b> Not determined.	<b>Relative density:</b> Not determined.
<b>Flammability (solid, gaseous):</b> Not determined.	<b>Vapor density:</b> Not determined.
<b>Ignition temperature:</b> Not determined.	<b>Evaporation rate:</b> Not determined.
<b>Auto-igniting:</b> Product is not self-igniting.	<b>Solubility in / Miscibility with Water:</b> Fully miscible.

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Component: RNase-free ddH2O

<b>Appearance:</b> Colorless liquid.	<b>Danger of explosion:</b> Product does not present an explosion hazard.
<b>Odour/Odour Threshold:</b> Not determined.	<b>Explosion limits:</b> Not determined.
<b>pH:</b> Not determined.	<b>Decomposition temperature:</b> Not determined.
<b>Melting point/freezing point:</b> Not determined.	<b>Vapor pressure at 20 °C:</b> Not determined.
<b>Boiling point/Boiling range:</b> Not determined.	<b>Density:</b> Not determined.
<b>Flash point:</b> Not determined.	<b>Relative density:</b> Not determined.
<b>Flammability (solid, gaseous):</b> Not determined.	<b>Vapor density:</b> Not determined.
<b>Ignition temperature:</b> Not determined.	<b>Evaporation rate:</b> Not determined.
<b>Auto-igniting:</b> Product is not self-igniting.	<b>Solubility in / Miscibility with Water:</b> Fully miscible.

Component: 5X Super Mix RT

<b>Appearance:</b> Colorless liquid.	<b>Danger of explosion:</b> Product does not present an explosion hazard.
<b>Odour/Odour Threshold:</b> Not determined.	<b>Explosion limits:</b> Not determined.
<b>pH:</b> Not determined.	<b>Decomposition temperature:</b> Not determined.
<b>Melting point/freezing point:</b> Not determined.	<b>Vapor pressure at 20 °C:</b> Not determined.
<b>Boiling point/Boiling range:</b> Not determined.	<b>Density:</b> Not determined.
<b>Flash point:</b> Not determined.	<b>Relative density:</b> Not determined.
<b>Flammability (solid, gaseous):</b> Not determined.	<b>Vapor density:</b> Not determined.
<b>Ignition temperature:</b> Not determined.	<b>Evaporation rate:</b> Not determined.
<b>Auto-igniting:</b> Product is not self-igniting.	<b>Solubility in / Miscibility with Water:</b> Fully miscible.

Component: 5X No RT Control Mix

<b>Appearance:</b> Colorless liquid.	<b>Danger of explosion:</b> Product does not present an explosion hazard.
<b>Odour/Odour Threshold:</b> Not determined.	<b>Explosion limits:</b> Not determined.
<b>pH:</b> Not determined.	<b>Decomposition temperature:</b> Not determined.
<b>Melting point/freezing point:</b> Not determined.	<b>Vapor pressure at 20 °C:</b> Not determined.
<b>Boiling point/Boiling range:</b> Not determined.	<b>Density:</b> Not determined.
<b>Flash point:</b> Not determined.	<b>Relative density:</b> Not determined.
<b>Flammability (solid, gaseous):</b> Not determined.	<b>Vapor density:</b> Not determined.
<b>Ignition temperature:</b> Not determined.	<b>Evaporation rate:</b> Not determined.
<b>Auto-igniting:</b> Product is not self-igniting.	<b>Solubility in / Miscibility with Water:</b> Fully miscible.

## Article 10 - Stability and Reactivity

- **Reactivity:** Stable under recommended transport and storage conditions.
- **Chemical stability:** Stable under recommended transport and storage conditions.
- **Possible hazardous reactions:** No dangerous reactions known.
- **Conditions to avoid:** Heat and moisture.
- **Incompatible materials:** Strong acids/bases, strong oxidizing agents.
- **Hazardous decomposition products:** Not determined.

## Article 11 - Toxicological Information

- **Acute toxicity:** Not available.
- **LD/LC50:** Not available.
- **Skin corrosion/irritation:** Not available.
- **Serious eye damage/eye irritation:** Not available.
- **Respiratory or skin sensitization:** Not available.
- **Germ cell mutagenicity:** Not available.
- **Carcinogenicity:** No components are listed in IARC, or NTP, or OSHA, or ACGIH.
- **Reproductive toxicity:** Not available.
- **Teratogenicity:** Not available.
- **Specific target organ toxicity - single exposure/ - repeated exposure (GHS):** Not available.
- **Aspiration hazard:** Not available.
- **Potential health effects:**  
 Inhalation: No data available  
 Ingestion: No data available  
 Skin: No data available  
 Eyes: No data available
- **Signs and Symptoms of Exposure:** No data available
- **Synergistic effects:** Not available.

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## Article 12 - Ecological Information

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- **Eco-toxicity:** No data available.
- **Biodegradability:** Not applicable.
- **Bio-accumulative potential:** Not applicable.
- **Mobility in soil:** Not applicable.
- **PBT and vPvB assessment:** Not applicable.
- **Other adverse effects:** Not applicable.

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## Article 13 - Disposal Considerations

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- **Disposal methods:** In accordance to applicable national, regional, or local laws and regulations. For additional handling information and protection of employees please refer to Article 7 and 8.
- **Contaminated packaging:** Disposal should be made in accordance to official regulations. Use water or cleansing agents to clean the area.

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## Article 14 - Transport Information

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- **DOT:** Not dangerous goods.
- **IMDG:** Not dangerous goods.
- **IATA:** Not dangerous goods.

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## Article 15 - Regulatory Information

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- **WHMIS Classification:** Non-hazardous.
- **GHS label elements:** Not applicable.
- **Signal word:** Not applicable.
- **Hazard statements:** Not applicable.

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## Article 16 - Other Information

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The above information is believed to be correct but does not purport to be all-inclusive and shall be used only as a guide. SignalChem shall not be held liable for any damage resulting from handling or from contact with the above product. See the Technical Specification, Packing Slip, Invoice, and Product Catalog for additional terms and conditions of sale.

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