RNAcore

HOUSTON Methodist LEADING MEDICINE

Frequently Asked Questions

About the RNAcore

1. **Where is the RNAcore located?**

   The RNAcore is located within the Research Institute of the Houston Methodist Hospital, in the heart of the Texas Medical Center. Our main office is on the 10th floor (south wing) of the Houston Methodist Research Institute Building (6670 Bertner Avenue, Houston, TX 77030).

2. **How do I contact the RNAcore?**

   You may contact the RNAcore either through email (RNAcore@houstonmethodist.org) or by phone (713.363.9043 / 713.441.3927). We are available to respond to calls during business hours, between 8am and 5pm (CST), Monday through Friday (excluding holidays). If inquiring about special requests, including cGMP-grade products, please ask to speak with the RNAcore's Director, Dr. Ivone Bruno.

3. **When can I expect a response to my messages?**

   Typically within one business day of receiving your message.

4. **I just received my order. How do I rate your products/services?**

   Please click the following link to be directed to our customer survey. We greatly appreciate any and all feedback! **https://www.surveymonkey.com/r/PBWQTJ9**

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Houston Methodist Research Institute
6670 Bertner Avenue, R10-414
Houston, TX 77030
713.363.9043 | 713.441.3927 | RNAcore@houstonmethodist.org

Ordering from the RNAcore

5. How do I request a quote?

To request a price quote, please contact the RNAcore (see FAQ No. 2- "How do I contact the RNAcore?").

6. How do I order RNA products from the RNAcore?

To order from the RNAcore, a customer has two options:

(1) Submit a request through RNAcore's Sales Support (refer to FAQ No. 7).

(2) Set up an account with *iLab* and order through the RNAcore's automated *iLab* ordering system, accessible via Internet at https://my.ilabsolutions.com/account/login.

7. How do I request an order through the RNAcore's Sales Support?

Please send your request via e-mail to RNAcore@houstonmethodist.org. We will typically reply within one business day with an order form to be filled out and returned, requesting the following information. For quicker processing, please have the following information ready:

Construct name/gene	Amount (µg)	Concentration* (µg/µL)	RNA Buffer (EDTA, Water, Dehydrated)	HPLC Purification (Yes or No)	Nucleotide Fluorophore Tagging (Yes or No)

*** Concentration of samples is a standard of 1.0 µg/µL, please note if you are requested a higher concentration**

8. What is *iLab*?

iLab is a web platform for placing ordering requests and processing payment. Various institutions use *iLab* for selling products and services. To access and register for *iLab*, please visit their website: https://my.ilabsolutions.com/account/login. For more detailed directions on how to register for *iLab*, please see the following FAQs.

9. How do I complete a service request through *iLab*?

I. Complete the account sign-up form, which is available through the following link: https://my.ilabsolutions.com/service_center/show_external/3311

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II. You will receive an email with account information and basic instructions once your account has been approved.

III. Once you are signed up, please find HMRI RNAcore from the list of cores, and request access to our specific core.

IV. Using your login credentials, you can place orders, as follows:

a. Navigate to the core page: https://my.ilabsolutions.com/service_center/show_external/3311

b. Login by clicking the *Login* button in the upper right hand corner of the page

c. Click the *Request Services* tab. Identify which category of product you would like: Immediately Available or Custom RNA Synthesis.

d. Click on the *Initiate Request* button next to the service of interest. You will be asked to complete a form and provide payment information for your request before submitting the request to the RNAcore.

e. The RNAcore will review your request and generate an official quote for your approval.

f. Once the request has been agreed upon by you and the RNAcore, *iLab* will seek authorization from the designated principal investigator (PI).

g. We will begin the project and inform you of the anticipated delivery date, as well as relevant milestones.

10. The *iLab* instructions you provided did not work. How do I get additional help?

More detailed instructions are available in the customer manual, or contact support@ilabsolutions.com. Please also feel free to contact the RNAcore at RNAcore@houstonmethodist.org or at 713.363.9043 / 713.441.3927 if we can be of further assistance in any way.

11. To whom do I send payment?

Please send all payments for the RNAcore to the following address:

The Methodist Hospital Research Institute
Att'n: Israel Ramirez (RNAcore)
6670 Bertner Avenue
R10-414
Houston, TX 77030

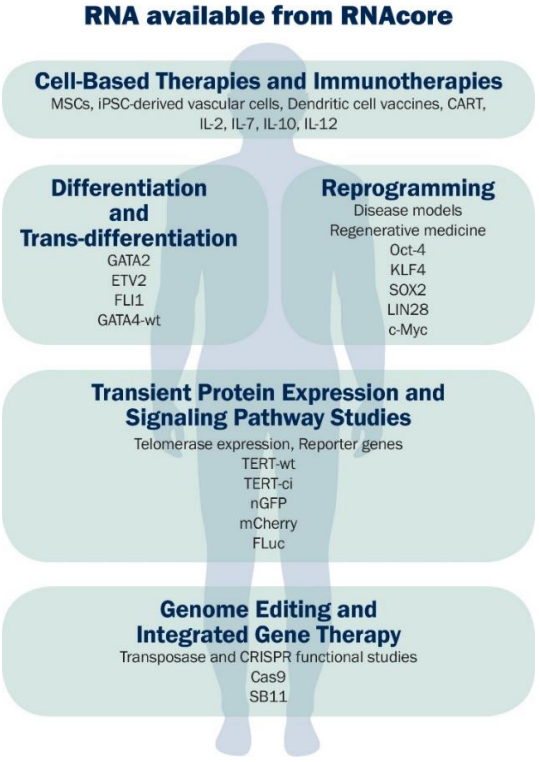
RNAcore's RNA Products

12. What types of RNA molecules do you offer?

The RNAcore generates high-fidelity research- and cGMP-grade RNA through the process of *in vitro* transcription. We make most types of RNA including: messenger RNA (mRNA), modified mRNA (mmRNA), customized bicistronic constructs, constructs with reporter genes, long noncoding RNA, and small RNAs, such as probes, miRNA, and CRISPR guide RNA.

13. What is the difference between modified and non-modified RNA? Which is better?

Non-modified RNA is generated by *in vitro* transcription with regular, non-modified nucleotides. Modified RNA is generated by *in vitro* transcription with Pseudouridine, instead of Uridine. We can also incorporate 5-methyl Cytosine at the customer's request. Messenger RNA also typically incorporates ARCA (Anti-reverse cap analog). The incorporation of modified nucleotides and ARCA in mRNA has been shown to improve mRNA stability and reduce RNA immunogenicity in various *in vitro* and *in vivo* applications. However, this can vary for cells, tissues, and animals. Modifications, nucleotide incorporations, and ARCA should be tested and adjusted for the customer's desired application and can be added or removed at the customer's request.



14. What products do you have in your repository of 'already-made' constructs for RNA production?

Please see the RNAcore diagram (**right**) showing all our currently available RNAs. We can also generate new constructs upon request.

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15. Do you make personalized RNA constructs?

Yes, the RNAcore can generate customized RNA molecules for any species and any loci of interest.

16. How should RNA be stored and for how long? Can it be stored longer?

RNA generated from the RNAcore has a recommended storage of up to 1 year at -80°C. Avoidance of freeze-thaw cycles is recommended.

17. What solvents can be used to re-suspend the RNA?

RNA is typically provided in TE buffer (Tris-EDTA). However, at the customer's request, we can provide RNA in water or as a dehydrated product.

18. What concentration is the RNA product sold at?

We typically provide our customers with IVT RNA at a concentration of 1 µg/µL. However, this can be altered or adapted to the customer's requested concentration.

19. What backbone plasmid template do you use?

The template plasmid contains a specialized 5'UTR (Untranslated Region), 3'UTR, and Poly(A)-tail (150 bp). Template plasmids can also be edited to the customer's desired specifications and applications.

20. How do you make your RNA? By what process?

We manufacture our RNA using the process of *in vitro* transcription. We do not generate nucleotides through synthesis.

21. Do you purify your RNA? By what method?

Our core utilizes various methods to purify our IVT RNA, ranging from ion exchange chromatography to HPLC purification, upon request.

22. Do you make cGMP-grade RNA? How is it requested?

We are capable of making cGMP-grade RNA. To request cGMP-grade RNA, please request to speak with the RNAcore Director, Dr. Ivone Bruno, PhD (rnacore@houstonmethodist.org; 713.363.9043 / 713.441.3927).

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23. What type of quality control (QC) testing is done on the RNA products?

A list of some of the quality control testing available is listed below:

- Assessment of RNA integrity by Agilent Bioanalyzer (microfluidic electrophoresis)
- UV Spectrophotometry
- HPLC chromatography analysis
- Residual *E. coli* DNA
- Residual Template plasmid DNA
- Presence of IVT derived impurities: dsRNA, DNA:RNA hybrids, abortive transcripts
- RNA sequence verification
- RNase testing
- *Mycoplasma* and Endotoxin testing

24. Do you provide Certificates of Analysis?

Yes, all our products, research- and cGMP-grade RNA, come with a full Certificate of Analysis.

25. How long does it take to make RNA? Will I receive an estimated completion date?

Since each project involves different production and manufacturing requirements, we will send you an email notification at the beginning of each of our product development and manufacturing phases.

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RNAcore Procedures and Suggested Protocols/SOPs

26. What are the suggested concentrations and amounts of RNA for *in vitro* transfection? Specifically, for nGFP transfection?

We recommend that you optimize your protocols, taking into consideration optimal cell seeding concentration, transfection-agent to RNA-concentration ratio, and optimal protein expression and stability. For a generic transfection protocol, please visit our website: http://www.houstonmethodist.com/rnacore.

Other RNAcore Products

27. Do you make DNA?

We do not currently make or synthesize DNA for sale.

28. Do you make siRNAs?

We do not currently make or synthesize siRNAs.

RNAcore Services

29. What other services do you provide?

In addition to developing and manufacturing IVT RNA, we provide the following services, at the customer's request:

- Nucleotide fluorophore tagging

30. Do you do offer RNA expression analysis as a service?

We currently do not perform RNA expression analysis.

31. Do you perform RNA functional studies as a service?

We currently do not provide functional study services.

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