# Resource Summary Report

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## NAST

RRID:SCR_006995
Type: Tool

### Proper Citation

NAST (RRID:SCR_006995)

### Resource Information

**URL:** https://simtk.org/home/nast

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**Description:** A knowledge-based coarse-grained tool for modeling RNA structures. It produces a diverse set of plausible 3D structures that satisfy user-provided constraints based on: 1. primary sequence 2. known or predicted secondary structure 3. known or predicted tertiary contacts (optional) Additionally, NAST can use residue-resolution experimental data (e.g. hydroxyl radical footprinting) to filter the generated decoy structures. NAST uses an RNA-specific knowledge-based potential in a coarse-grained molecular dynamics engine to generate large numbers of plausible 3D structures that satisfy the constraints given on the secondary and tertiary structure. It then filter these structures based on agreement to the experimental data (if available). This results in a model of the molecule which satisfies all the known residue-resolution data. Imported from BiositeMaps registry

**Abbreviations:** NAST

**Synonyms:** The Nucleic Acid Simulation Tool (NAST), The Nucleic Acid Simulation Tool

**Resource Type:** simulation software, software application, software resource

**Keywords:** 3d, nucleic acid, primary, rna, secondary, sequence, simulation, structure, tertiary, tool

**Resource Name:** NAST

**Resource ID:** SCR_006995

**Alternate IDs:** nif-0000-23333

**Record Creation Time:** 20220129T080239+0000

**Record Last Update:** 20260912T195648+0000

## Ratings and Alerts

No rating or validation information has been found for NAST.

No alerts have been found for NAST.

## Data and Source Information

**Source:** SciCrunch Registry

## Usage and Citation Metrics

We found 68 mentions in open access literature.

**Listed below are recent publications.** The full list is available at PRECISE-TBI .


Silva J, et al. (2026) GARN3: A coarse-grained helix centered technique for RNA 3D structures prediction. PloS one, 21(6), e0328609.

Berke?o?lu M, et al. (2025) Axillary Pathological Complete Response After Neoadjuvant Therapy in cN1-2 Breast Cancer: An Internally Validated PET/CT-Integrated Nomogram. Current oncology (Toronto, Ont.), 32(12).

Guirguis MS, et al. (2025) Early tumor volume reduction by breast DCE MRI predicts pathologic complete response to neoadjuvant therapy in triple negative breast cancer. NPJ breast cancer, 11(1), 129.

Neubauer C, et al. (2025) Breast cancer assessment under neoadjuvant systemic therapy using thoracic photon-counting detector computed tomography in prone position: a pilot study. European radiology experimental, 9(1), 41.

Wehrle CJ, et al. (2025) Sequence of Chemotherapy May Not Impact Survival After Resection of Pancreatic Tail Adenocarcinoma. Journal of surgical oncology, 131(7), 1362.

Pislar N, et al. (2025) Predicting nodal response to neoadjuvant treatment in breast cancer with core biopsy biomarkers of tumor microenvironment using data mining. Breast cancer research and treatment, 210(1), 87.

Jannusch K, et al. (2024) Prediction of therapy response of breast cancer patients with machine learning based on clinical data and imaging data derived from breast [18F]FDG-PET/MRI. European journal of nuclear medicine and molecular imaging, 51(5), 1451.

Mohamed RM, et al. (2024) Multiparametric MRI-based radiomic models for early prediction of response to neoadjuvant systemic therapy in triple-negative breast cancer. Scientific reports, 14(1), 16073.

Stagaman K, et al. (2024) The zebrafish gut microbiome influences benzo[a]pyrene developmental neurobehavioral toxicity. Scientific reports, 14(1), 14618.

Bravo EI, et al. (2024) Reliability of Magseed® marking before neoadjuvant systemic therapy with subsequent contrast-enhanced mammography in patients with non-palpable breast cancer lesions after treatment: the MAGMA study. Breast cancer research and treatment, 208(1), 133.

van Olmen JP, et al. (2024) Nodal involvement in patients with small, clinically node-negative HER2-positive breast cancer after staging with FDG-PET/CT and neoadjuvant systemic therapy. Breast (Edinburgh, Scotland), 78, 103822.

Nie L, et al. (2024) Cyclic di-GMP inhibits nitrate assimilation by impairing the antitermination function of NasT in Pseudomonas putida. Nucleic acids research, 52(1), 186.

Pfob A, et al. (2024) Minimally Invasive Breast Biopsy After Neoadjuvant Systemic Treatment to Identify Breast Cancer Patients with Residual Disease for Extended Neoadjuvant Treatment: A New Concept. Annals of surgical oncology, 31(2), 957.

Chew SM, et al. (2024) Invasive disease-free survival and brain metastasis rates in patients treated with neoadjuvant chemotherapy with trastuzumab and pertuzumab. NPJ breast cancer, 10(1), 96.

Wang X, et al. (2023) RNA 3D Structure Prediction: Progress and Perspective. Molecules (Basel, Switzerland), 28(14).

Martín-Salvago MD, et al. (2023) Value of total tumor load as a clinical and pathological factor in the prognosis of breast cancer patients receiving neoadjuvant treatment. Comparison of three populations with three different surgical approaches: NEOVATTL Pro 3 Study. Breast cancer research and treatment, 200(2), 203.

Stecklein SR, et al. (2023) ctDNA and residual cancer burden are prognostic in triple-negative breast cancer patients with residual disease. NPJ breast cancer, 9(1), 10.

Zwolska J, et al. (2023) Morphological and Morphometric Analysis of Canine Choroidal Layers Using Spectral Domain Optical Coherence Tomography. International journal of environmental research and public health, 20(4).

Xu F, et al. (2023) Impact of multidisciplinary team on the pattern of care for brain metastasis from breast cancer. Frontiers in oncology, 13, 1160802.

Chen R, et al. (2023) Diagnostic value of core needle biopsy for determining HER2 status in breast cancer, especially in the HER2-low population. Breast cancer research and treatment, 197(1), 189.