

The Society of Thoracic Surgeons

General Thoracic Surgery Database Monthly Webinar

May 13, 2026



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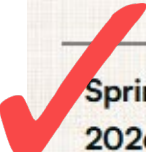
Agenda

- Welcome and Introduction
- STS Updates
- Data Manager Education
 - NGS, Driver Mutations, and Targeted Therapies in Lung Cancer
- Q&A

STS Updates

2026 Harvest Dates

2026 Harvest

Term	Harvest Submission Window Close	Opt-Out Date	Includes Procedures Performed Through:	Report Posting	Comments
 Spring 2026	March 13	March 17	December 31, 2025	Summer 2026	
Fall 2026	September 18	September 22	June 30, 2026	Winter 2026	

Analysis for each harvest is based on a 36-month window.

Data Submission Open is continuous for all harvest terms. Data Submission Close occurs at 11:59 p.m. Eastern on the date listed.

AQO 2026 – New Orleans

- **September 30 - October 2, 2026**
- GTSD & CHSD Sessions will be held Sept 30th (full day) and October 1st (half day)
- Intermacs & Pedimacs-Live Virtual Forum-September 24th
- ACSD Sessions will be held October 1st (full day) and October 2nd (half day)
- Half day sessions will include breakout discussions for the on-site databases
- Abstract Submission Form and Guideline:
 - [Abstract Submission Form](#)
 - Abstract submission deadline: June 12th



STS Education

Ruth Raleigh, GTSD
Clinical Consultant



NGS, DRIVER MUTATIONS, AND TARGETED THERAPIES IN LUNG CANCER

FOUNDATIONS OF NGS TESTING



INTRODUCTION TO NEXT-GENERATION SEQUENCING (NGS)

High-Throughput Sequencing

NGS enables simultaneous sequencing of millions of DNA or RNA fragments for comprehensive analysis.

Comprehensive Genomic Profiling

NGS evaluates dozens to hundreds of genes at once, identifying various genomic alterations in cancers.

Applications in Oncology

NGS guides precision cancer treatment by enabling personalized therapy based on tumor molecular profiles.

Liquid Biopsy Testing

Blood-based NGS testing analyzes circulating tumor DNA when tissue samples are limited or for disease monitoring.

CLINICAL RATIONALE FOR NGS IN LUNG CANCER



Targeted Genomic Alterations

NGS identifies actionable genomic alterations in NSCLC crucial for targeted therapy selection at diagnosis.

Comprehensive Biomarker Testing

NGS evaluates multiple biomarkers simultaneously, reducing missed mutations and guiding precise treatment.

Disease Monitoring and Resistance

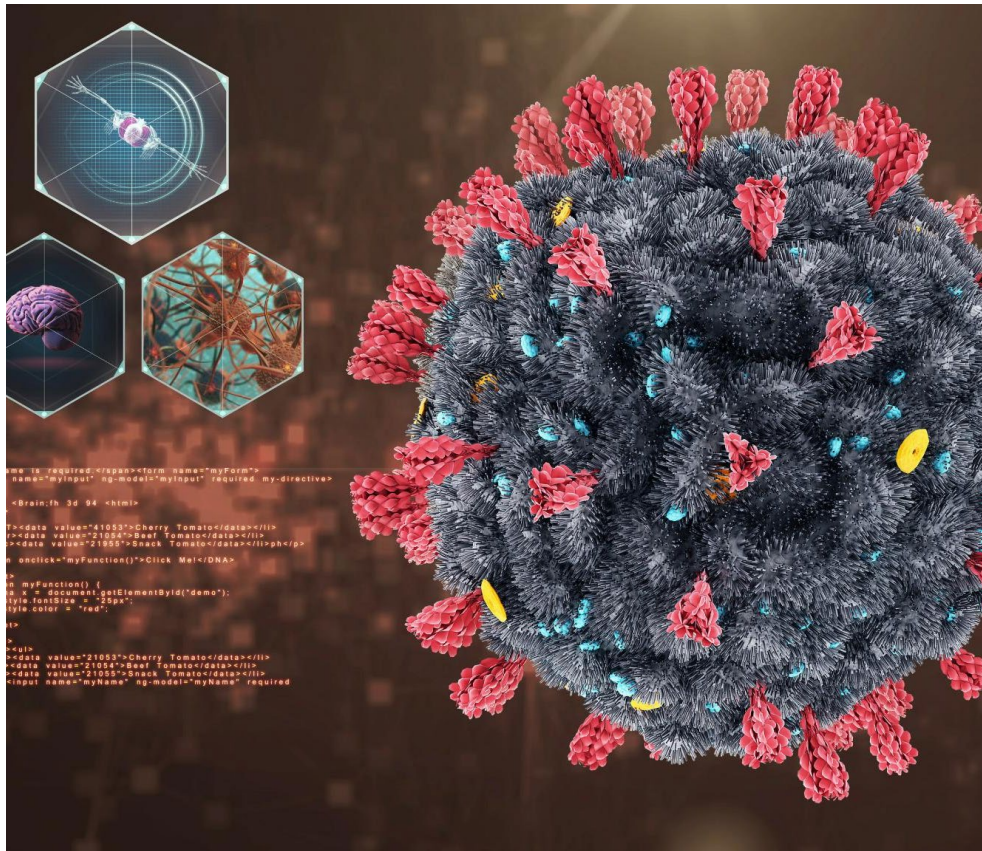
Repeat NGS testing detects resistance mutations during treatment, informing therapy adjustments and improving outcomes.

Healthcare Efficiency

NGS conserves tissue, reduces turnaround time, and supports evidence-based precision lung cancer care.

DRIVER MUTATIONS IN LUNG CANCER

DEFINITION AND BIOLOGICAL ROLE OF DRIVER MUTATIONS



Role of Driver Mutations

Driver mutations promote uncontrolled cell growth and survival, directly initiating and advancing cancer progression.

Therapeutic Targets

Driver mutations are essential for tumor maintenance, making them key targets for therapies that inhibit tumor growth.

Mutual Exclusivity Concept

Tumors generally depend on a single dominant driver mutation, enabling precise targeted treatment strategies.

Clinical Implications

Understanding driver mutations guides precision medicine, prognosis, and resistance patterns in lung cancer treatment.

COMMON DRIVER MUTATIONS IDENTIFIED BY NGS



EGFR Mutations in Lung Cancer

EGFR mutations are common in adenocarcinoma and non-smokers, guiding targeted therapy decisions.

Gene Fusions ALK and ROS1

ALK and ROS1 rearrangements cause kinase activation and respond well to targeted inhibitors.

KRAS and BRAF Mutations

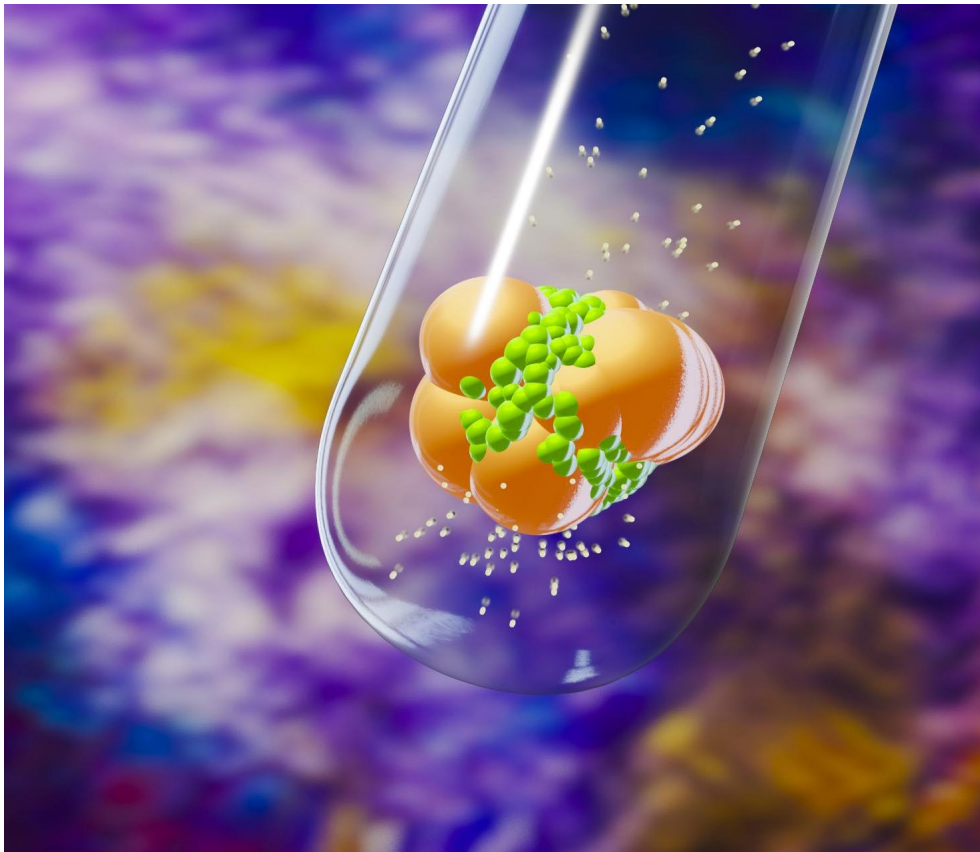
KRAS G12C mutations are common and now targetable; BRAF V600E mutations activate MAPK pathway treatable by combination therapy.

Less Common Actionable Alterations

MET exon 14 skipping and RET/NTRK fusions offer additional targeted therapy options in lung cancer.

TARGETED THERAPIES AND CLINICAL IMPACT

PRINCIPLES OF TARGETED THERAPY IN LUNG CANCER



Targeted Drug Mechanism

Targeted therapies inhibit molecular pathways driven by oncogenic mutations in lung cancer for precise treatment.

Advantages Over Chemotherapy

Targeted therapies offer higher response rates and fewer toxic effects compared to traditional chemotherapy.

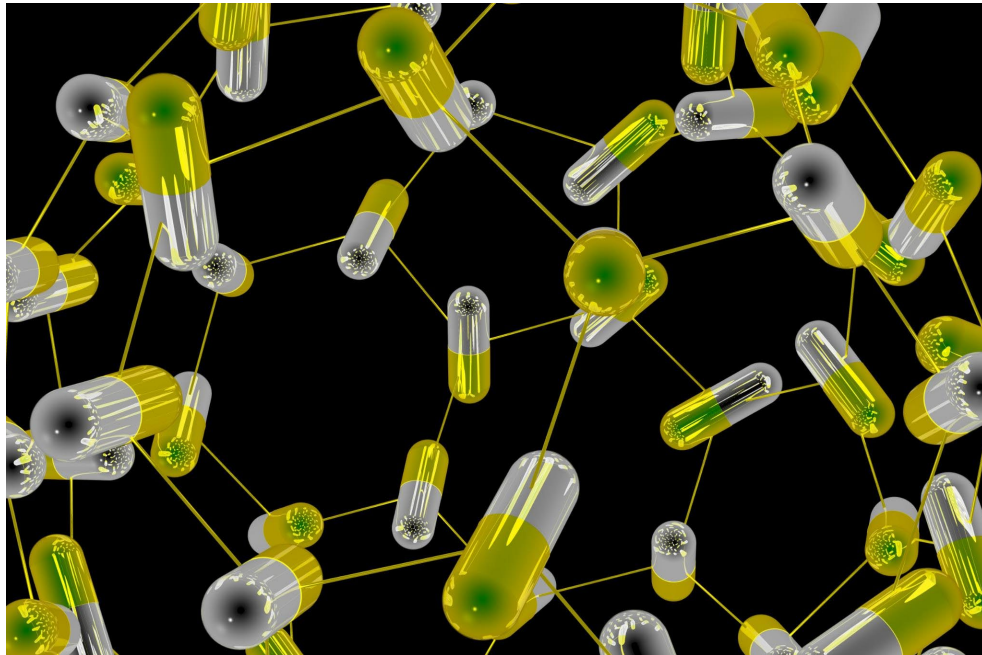
Oncogene Addiction Concept

Cancer cells rely heavily on a single driver pathway, making disruption highly effective for tumor response.

Treatment Challenges and Monitoring

Resistance to targeted therapy develops, emphasizing the need for molecular monitoring and accurate mutation testing.

EXAMPLES OF TARGETED THERAPIES GUIDED BY NGS



EGFR Mutation Therapy

Third-generation inhibitors effectively treat EGFR-mutated lung cancer with strong brain penetration.

ALK and ROS1 Targeted Agents

ALK rearranged and ROS1-positive tumors respond well to specific inhibitors improving survival.

BRAF and MET Inhibitors

BRAF V600E mutations are targeted with combination therapies; MET exon 14 skipping uses selective inhibitors.

RET Fusion Targeting

RET fusion-positive cancers benefit from selective therapies enhancing treatment precision.

SEQ 1852: MOLECULAR TEST PERFORMED



- Yes: NGS or in-house molecular testing completed



- No: NGS testing not performed or only PD-L1



- Must be related to lung cancer



- Includes tests ordered even if pending. Testing must be ordered within 30 days.



- Source: final pathology report of either the pre or post-op biopsy specimen

Open Discussion



Please use the Q&A Function.



We will answer as many questions as possible.



We encourage your feedback and want to hear from you!

Upcoming GTSD Webinars

Monthly Webinars

- June 10 @ 2:30ET (1:30CT)
- July 8 @ 2:30ET (1:30CT)

Quality Improvement Series

- June 25 @ 3:00ET (2:00CT)
- October 29 @ 3:00ET (2:00CT)



Contact Information

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Database Operational
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(Database Participation,
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THANK YOU FOR JOINING!