Phio Pharmaceuticals

Making Our Immune Cells More Effective in Killing Tumor Cells

Optimizing Immuno-oncology Therapy

INTASYL® Technology Platform

Corporate Presentation July 2026
www.phiopharma.com | Ticker: PHIO (NASDAQ)

Forward Looking Statements

This presentation contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Forward-looking statements can be identified by words such as "intends," "believes," "anticipates," "indicates," "plans," "expects," "suggests," "may," "would," "should," "potential," "designed to," "will," "ongoing," "estimate," "forecast," "target," "predict," "could" and similar references, although not all forward-looking statements contain these words. These statements, which include statements, among other things, regarding the anticipated benefits of our INTASYL™ RNAi platform, the results from our ongoing clinical trials, our expectations regarding timing of FDA submissions intended to propose and seek guidance for next steps in clinical study design for PH-762, our expectations that such FDA submissions and any related FDA meetings will clarify next steps in advancing the PH-762 development program, details regarding our planned non-clinical toxicology study, and our ability to support ongoing clinical development, operational requirements and strategic initiatives with the capital we currently have on hand, are based only on our current beliefs, expectations and assumptions and are subject to inherent uncertainties, risks and changes in circumstances that are difficult to predict and many of which are outside of our control. Our actual results may differ materially from those indicated in the forward-looking statements as a result of a number of important factors, including, but not limited to, the impact of future FDA interactions on the development of our product candidates; the impact to our business and operations by inflationary pressures; recession fears; the development of our product candidates, results from our nonclinical, preclinical and clinical activities, our ability to execute on business strategies, our ability to develop our product candidates with collaboration partners, and the success of any such collaborations, the timeline and duration for advancing our product candidates into clinical development, the timing or likelihood of regulatory filings and approvals, the success of our efforts to commercialize our product candidates if approved, our ability to manufacture and supply our product candidates for clinical activities, and for commercial use if approved, the scope of protection we are able to establish and maintain for intellectual property rights covering our technology platform, our ability to obtain future financing, market and other conditions and those risks identified in our most recent Annual Report on Form 10-K and subsequent Quarterly Reports on Form 10-Q under the caption "Risk Factors" and in other filings the Company periodically makes with the U.S. Securities and Exchange Commission. Readers are urged to review these risk factors and to not act in reliance on any forward-looking statements, as actual results may differ from those contemplated by our forward-looking statements. Phio does not undertake to update forward-looking statements to reflect a change in its views, events or circumstances that occur after the date of this release, except as required by law.

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Cutaneous Squamous Cell Carcinoma (cSCC)
Surgical Intervention is Standard of Care



- 2nd Largest Incidence of Solid Tumors
- Increasing due to Aging Population
- cSCC is Recurring
- Left Untreated can lead to Death
- Mortality Almost 2X Melanoma

Surgical Considerations
Lesion Size, Location, Patient's Health



- Area of Excision Extended 2-3X by Surgical Margins
- Site of Tumor Determines Risk Profile
- Comorbidities Affect Surgical Decision

Mitigating Size and Frequency of Excisions
PH-762 Neoadjuvant Tissue Sparing Therapy

- To reduce if not eliminate the tumor
- Minimize surgical excision and disfigurement
- Preserve skin integrity, promotes faster healing/recovery time
- Decrease need for reconstructive surgery

Phio's Approach

INTASYL siRNA
Mechanism of Action

Selectively silences the signal from a designated gene

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Suppressing protein which in presence of tumors causes our immune cells to be inert

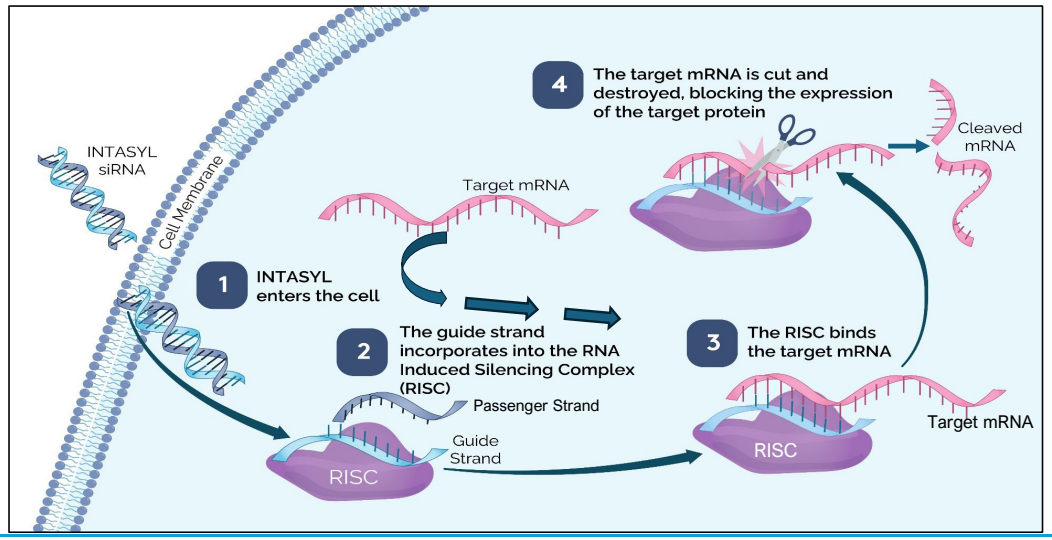
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Re-activates the body's immune cells (T Cells)

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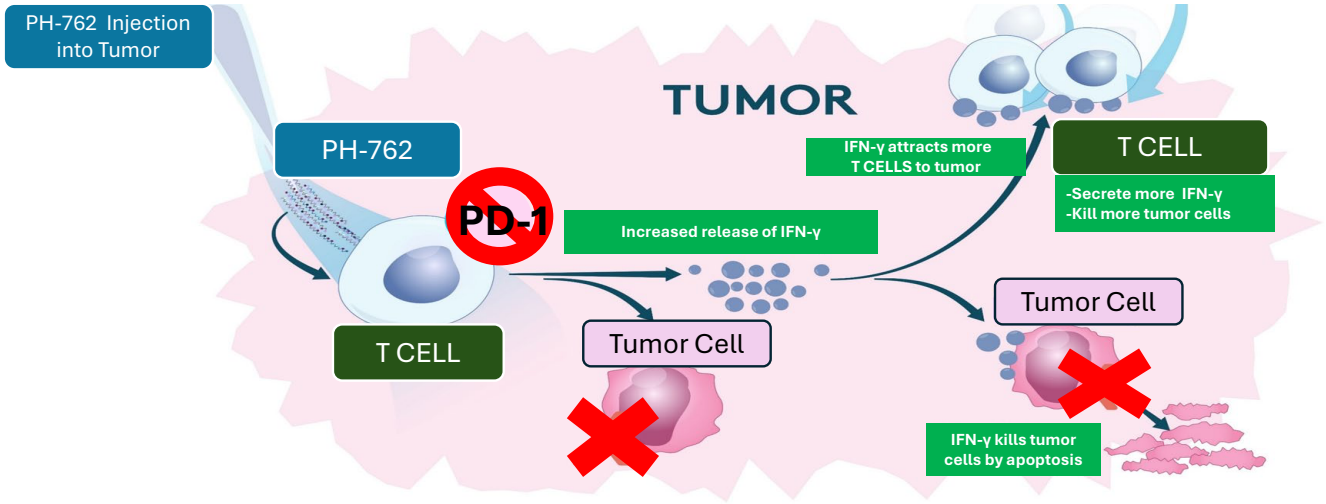
Making immune cells more effective in killing tumors

INTASYL Precision Silencing of mRNA



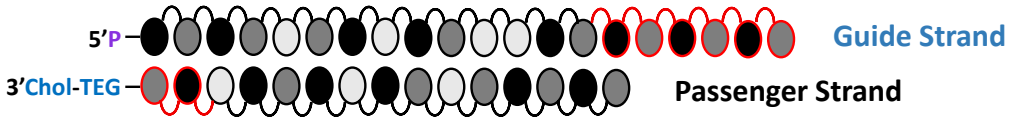
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Phio PH-762 Silences PD-1
Boosts Anti-Tumor Immunity



INTASYL® Unique Patented Chemistry Structure

Precise Sequence Design: Engineered for Exceptional Gene Target Specificity



- **No Formulation Delivery Enhancements Needed**
- **Cholesterol:** Enables intact drug delivery to any cell type or tissue through endocytosis
- **Phosphorothioates:** Protects stability

INTASYL Intellectual Property
54 Patents Issued

Portfolio Encompasses Issued and Pending Patents in Key Countries

- INTASYL® Chemistry
- Specific Gene Targets
- Immuno-oncology Compounds
- Therapeutic Indications



Phio Strategy: Two Tiered

Internal Development on Strategic Programs

Monetize Non-Strategic Portfolio via Out-License

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Focused Clinical Development

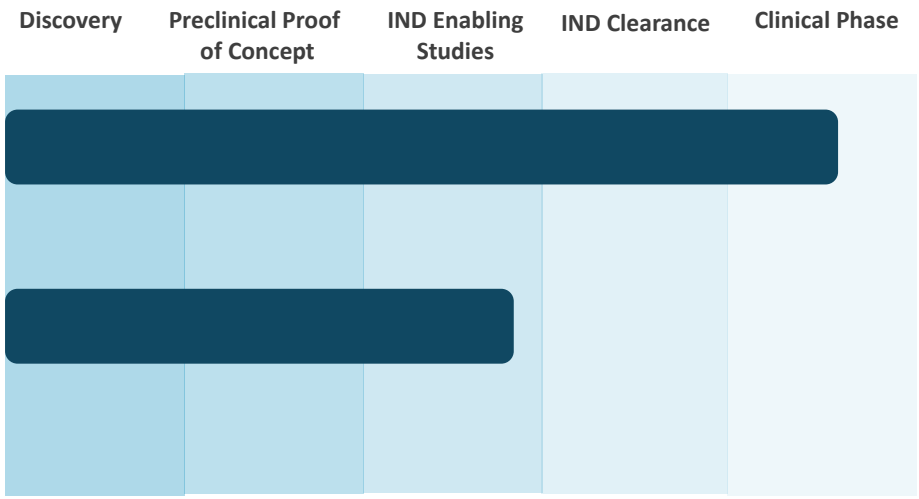
Program

PH-762 PD-1 silencer

Phase 1b Study-Completed
Stages I & II cutaneous Squamous Cell Carcinoma (cSCC)
Stage IV cSCC, melanoma, and Merkel cell carcinoma

PH-894 BRD4 silencer

Potential Indications
cSCC
Head and Neck SCC
Hepatocellular carcinoma (HCC)
HPV and related cancers
Melanoma



INTASYL PH-762 Intratumoral Therapy

Phase 1b Clinical Summary

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PH-762 Phase 1b Intratumoral Dose-Escalating Trial
Treatment Phase Completed: March 2026

Purpose: Determine Safety and Tolerability of Neoadjuvant PH-762

Phase 1b Design

5 escalating dose concentrations

- 4 intratumoral injections over 3 weeks with resection of residual lesion at week 5
- Endpoints: Safety (AE's), Tumor Pathology, Pharmacokinetic (PK) Analysis
- 22 patients completed treatment: 20 cSCC, 1 Merkel and 1 Melanoma

Clinicaltrials.gov NCT06014086

PH-762
Favorable Safety and Tolerability Profile

- No immune or treatment limiting toxicities in any patients
- 5 dose escalations revealed a safe 20-fold increase in drug concentration
- No recurrence seen at end of study (Day 113-March 2026) for cSCC patients

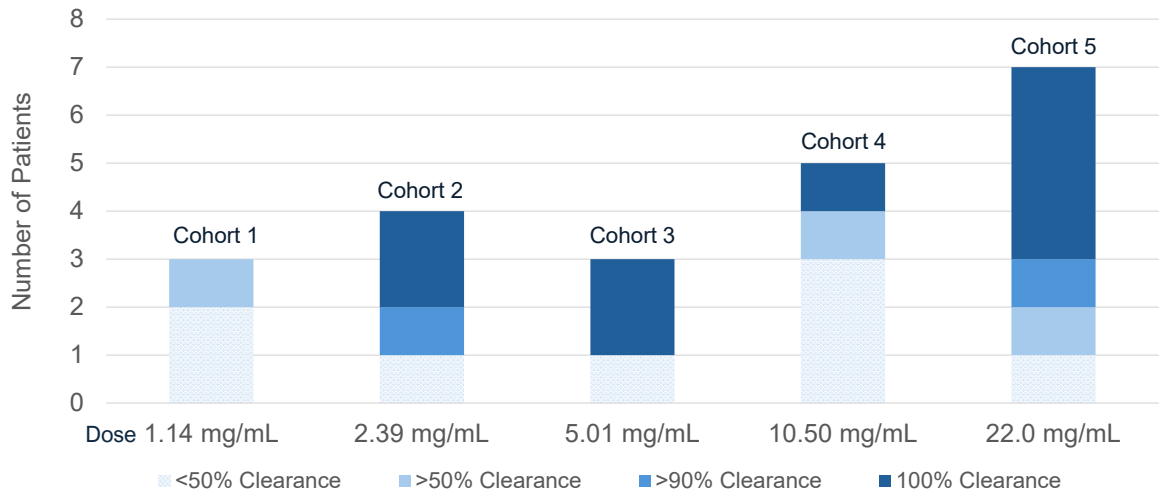
PH-762 Safety Profile
Contributing Factors

- Direct injection into tumor and precision targeting essentially eliminates off-target serious adverse events (SAEs).

- No formulation enhancers needed to deliver PH-762 into the desired target. This further mitigates the risk of SAEs and other toxicities.

PH-762 Clinical Efficacy

Final Cohort Yields 85% Pathological Response
100% Tumor Clearance in 4 of 6 Responders



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PH-762
Patient/Physician Convenience

- Administered in physician's office
- Avoids logistics of systemic infusion centers
- Minimizes post surgical recovery
- Refrigeration stability for 2 years
- Flexible dosing to accommodate lesion size

PH-762
Economics

- Office visits drive physician practice economics
- No capital outlays required by physician
- U.S. sourcing for API and drug product

PH-762 Clinical Development
Next Steps

- Design of next clinical study for PH-762 is underway to start in Q1 2027.
- Seeking FDA input targeted for third quarter of 2026.
- cGMP commercial scale production of API has commenced.
- cGMP commercial scale drug product targeted for 4th Quarter to support next clinical trial.
- Non-clinical toxicology study on-going, to support next clinical trial.

INTASYL PH-894 Intratumoral Therapy Profile

Secondary Program
Intratumoral PH-894: BRD4 Gene Silencer

- **BRD4 Implicated in Numerous Potential Cancers**
  -Melanoma, Breast, Cervical, Lung, Liver, Head and Neck, cSCC
- **PH-894 has a Dual Mode of Action**
  -Direct tumor killing
  -Activation of immune cells
- **PH-894 is Precisely Selective for BRD4 Gene**
  -Eliminates toxicity associated with other previously studied non-selective development compounds
  -PH-894 has clean toxicology profile in non-human primate
- **PH-894 has completed the required IND enabling studies**

Maximizing IP Portfolio

Out-License

Geography
Therapeutic Applications

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INTASYL Platform Versatility
Opportunities for Potential Monetization

Therapeutic Target	Proprietary INTASYL Silencing Compounds include
Oncology -Solid Tumors	PH-762, PD-L1, BRD4, LAG3, CBLb, TIM3, CTLA4, CD96, DGKα, STAT-3, MMP-1, DGKζ, ADORA2, TIGIT
-Hematologic Cancers	PH-894, MDM2, STAT-3, PRDM1
HPV, HSV, HCV	PH-894, PH-762

Phio Pharmaceuticals

INTASYL siRNA Precision Silencing Technology

Established Phase 1b safety and efficacy for PH-762
Significant Market Size cSCC
Extensive Intellectual Property
Experienced Management Infrastructure

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