

BIOTECH STRATEGY INTELLIGENCE SERIES

PD-1/PD-L1 Failure Intelligence™

NIH-Derived Mechanistic Bottlenecks & Next-Generation Rescue Strategies

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Immunology & Translational Research Intelligence

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~\$50B

Global PD-1/PD-L1
market (2026)

65–85%

Patients without
durable response

3,500+

Active clinical trials
globally

8

Mechanistic bottlenecks
identified

**“The majority of patients still do not respond to checkpoint therapy.
This report asks — and helps explain why.”**

Response rates to PD-1 monotherapy: 15–35% in most solid tumours.

Pan-cancer failure. Systems-level resistance. One definitive framework.

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FULL REPORT CONTENTS

18 Chapters. One Definitive Framework.

01	Introduction: The Checkpoint Paradox Market context, validated targets, pain point
02	Executive Summary Core mechanistic insight & strategic implications
03	Why Therapy Remains Incomplete Multi-layer resistance framework
04	NIH Signal Extraction Framework Data source, LLM classification, methodology
05–06	Mechanistic Intelligence Layer 🔒 Full bottleneck profiles and resistance architecture
07	Convergence Intelligence Layer 🔒 Cross-domain signal mapping across all resistance axes
08–10	Therapeutic & Translational Opportunities 🔒 Multi-layer combination framework
11–12	Commercial & Investment Intelligence 🔒 Strategic implications across pharma, biotech, investment
13–18	Scientific Foundation & Appendix 🔒 Methodology, search strategy, reference framework

KEY INSIGHT

NIH funding patterns reveal mechanistic bottlenecks 5–10 years before pivotal trial design.

WHY THIS REPORT IS DIFFERENT

Structured signal intelligence — not a literature review. Non-replicable internally.

INTELLIGENCE POSITIONING

Not a Literature Review. Structured Signal Intelligence.

Upstream Detection

NIH funding patterns surface bottlenecks 5–10 years before pivotal trial design.

Recurrence Validation

Cross-stream consensus across hundreds of independent projects — stronger than any single publication.

Non-Replicable Internally

Requires large-scale aggregation of NIH-funded grant abstracts across a decade of funding streams.

EXECUTIVE TAKEAWAY

“What is most striking is not the individual bottlenecks — but how they reinforce each other in ways not captured in current trial design.”

ACCESS THE FULL INTELLIGENCE REPORT

Stop Treating PD-1 Failure *as a Mystery*

Eight bottlenecks. Seven convergence zones. Thirty-plus rescue strategies.
One analytically rigorous framework grounded in a decade of NIH-funded grant abstracts.

8

Mechanistic Bottlenecks

Systems-level resistance mapping from NIH data

7

Convergence Zones

Where resistance pathways collide and compound

30+

Rescue Strategies

Actionable next-generation combination approaches

REQUEST ACCESS TO THE FULL INTELLIGENCE REPORTJeya@escienceinfo.com

Available to: Pharma strategy teams · Biotech founders · VC investors · Translational oncology leads

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“This is proprietary strategic scientific intelligence.”