NAVIDEA BIOPHARMACEUTICALS, INC.
REPORT OF LIFESCI PARTNERS
EXPLANATORY NOTE
December 13, 2021

Navidea Biopharmaceuticals, Inc. ("Navidea") is publicly disclosing the attached report (the "LifeSci Report") of LifeSci Partners (LifeSci Advisors, LLC), which has performed a U.S.-focused secondary market research valuation of Navidea's advanced pipeline product Tc99m tilmanocept for prediction of treatment efficacy of anti-TNFα therapy in Rheumatoid Arthritis ("RA"). Navidea is releasing the LifeSci Report to provide investors with information on Navidea's process for evaluating investments in its product pipeline.

Cautionary Note Regarding Forward-Looking Statements. Some of the statements made in the LifeSci Report represent forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. These forward-looking statements are subject to a number of risks, uncertainties and assumptions, including, among other things, the fact that the valuation by LifeSci Partners of Navidea's Tc99m tilmanocept pipeline product is subject to and based on numerous assumptions about the commercial success of the product, expected associated costs, and the outcome of various risks, including results of clinical trials, that could affect the timetable for revenues, among other assumptions, and that actual outcomes are likely to vary from such assumptions, which would result in variations from the possible results set forth in the LifeSci Report. Any such statements about possible outcomes for Navidea's product are subject to other risk factors detailed in Navidea's most recent Annual Report on Form 10-K and other SEC filings. You are urged to carefully review and consider the disclosures found in Navidea's SEC filings, which are available at http://www.sec.gov or at http://ir.navidea.com.

You are cautioned not to place undue reliance on any forward-looking statements, any of which could turn out to be incorrect. Navidea undertakes no obligation to update publicly or revise any forward-looking statements, whether as a result of new information, future events or otherwise after the date of this report. In light of these risks and uncertainties, the forward-looking events and circumstances discussed in this report may not occur and actual results could differ materially from those anticipated or implied in the forward-looking statements.

LIFESCI PARTNERS

Partnering & Analytics | December 2021

Navidea Biopharmaceuticals
U.S. RA Diagnostics rNPV Valuation

Executive Summary

As the first therapeutic-guiding RA diagnostic, Tc-Tilmanocept represents a potential multi-billion $ opportunity

Diagnostics Landscape	• Tc-Tilmanocept is positioned to be the **first and only therapeutic-guiding diagnostic** in rheumatoid arthritis (RA), a disease that impacts ~1.9 M adult patients in the U.S. • A novel RA radiopharmaceutical diagnostic may fall under **CMS's CPT code 78802**
Tc-Tilmanocept Positioning	• For the purpose of this assessment, we modeled Tc-Tilmanocept's opportunity for **adult RA patients in consideration for anti-TNF therapies** (i.e., 2L+ patients), though opportunity remains for label expansion to additional therapeutic classes, pediatrics, and primary diagnosis
Base-case Valuation Outputs	• Assuming ~45% share in 2L+ line-of-therapy switch patients, ~4.5% share in 2L+ prevalent follow-up patients, and a discount rate of 12%, **cumulative 2022 – 2036 revenue may reach ~$9.2 B with a PV of ~$3 B** • With costs and a ~52% likelihood of success, **risk-adjusted net present value (rNPV) may reach ~$850 M**
Upside Valuation Outputs	• Upside scenario assumes **ACR guideline inclusion** boosts 2L+ switch share to ~78% and 2L+ prevalent share to ~7.8%, resulting in **~$15.9 B in cumulative revenue from 2022 – 2036 and a PV of ~$5.2 B** • The upside scenario may result in an **rNPV of ~$1.5 B** after considering the program's costs and risks
Future Opportunities	• Multiple opportunities remain to unlock further Tc-Tilmanocept value in RA, including **label expansion** to additional therapeutic classes or pediatrics, **patient advocacy campaigns** to increase **patient compliance** and **diagnosis rates**, **marketing efforts** to **bolster preference share**, and **registration as a biomarker**

RA: Rheumatoid Arthritis; CMS: Centers for Medicaid and Medicare Services; CPT: Current Procedure Terminology; 2L: Second-line; PV: Present Value; ACR: American College of Rheumatology.

Table of Contents

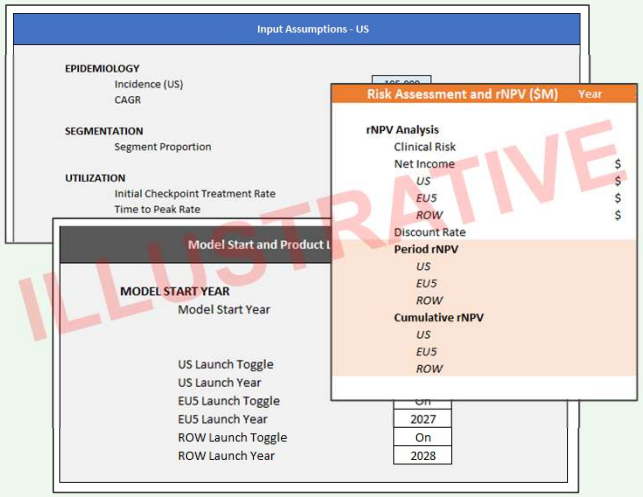
Navidea Biopharmaceuticals U.S. Rheumatoid Arthritis Diagnostic Valuation

Valuation Model Architecture

P&L Model Scope

LifeSci built an Excel model to calculate the risk-adjusted net present value (rNPV) of Navidea's RA diagnostic

*The LifeSci **P&L model** estimates the present value of the RA program*



Context: The P&L dynamically models the future commercial opportunity, costs, and rNPV of Navidea's RA diagnostic in the U.S. market

Key Territory:

United States

Disease:

Rheumatoid Arthritis

Evaluated Label:

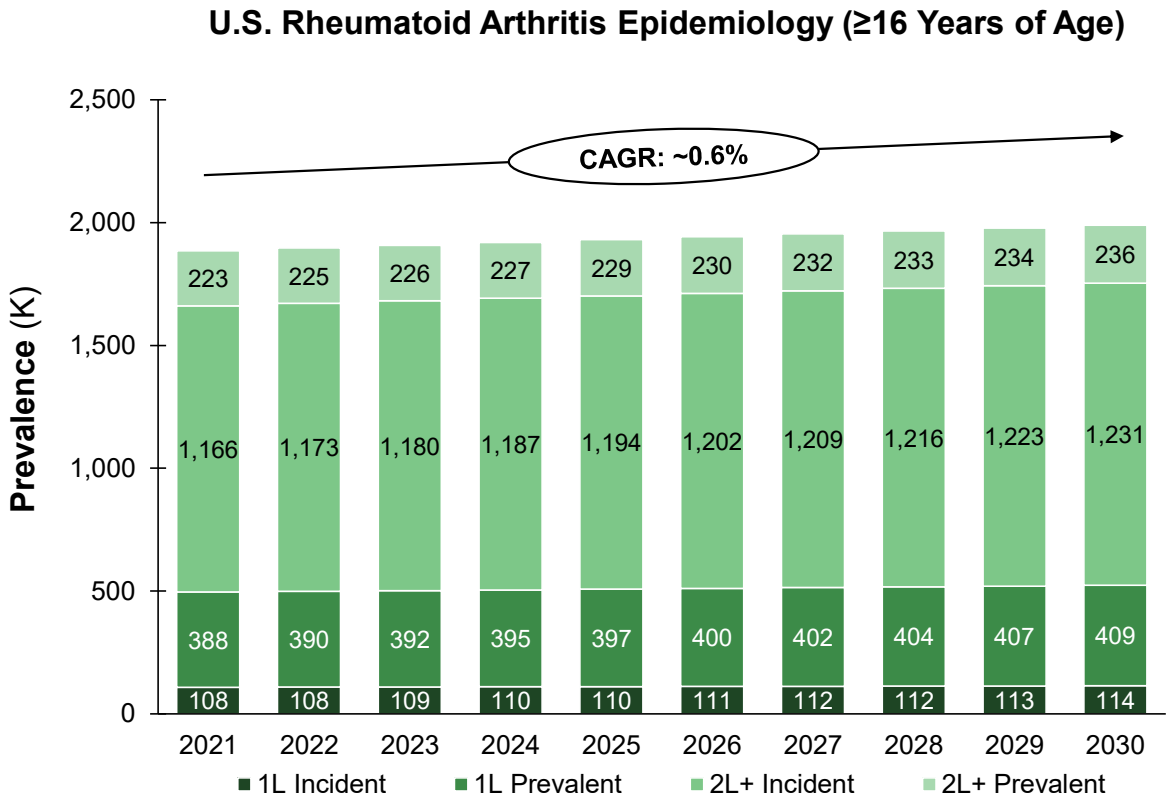
For the early prediction of Anti-TNFα response in patients with moderate to severe active rheumatoid arthritis

The P&L outputs revenue, expenses, probability of success, and net present value for the RA diagnostic based on inputs sourced from LifeSci secondary research and Navidea internal assumptions

Rheumatoid Arthritis Landscape

U.S. Rheumatoid Arthritis Epidemiology (≥16 Years of Age)

Due to poor initial response rates and current therapies' attenuating efficacy, most RA patients are in the 2L+



In the U.S., rheumatoid arthritis (RA) has an **incidence of ~40 per 100 K** and a **prevalence of ~0.7%** of the population over 16 years of age

Of incident patients who initiate 1L methotrexate therapy, **~30% will initially respond** with an average **duration on treatment of ~13 years**

Among 2L+ patients initiating a new line of therapy (i.e., "2L+ Incident" patients), **~20% and ~15% initially respond** for an average of **~4 and ~2 years** in the 2L and 3L+ setting, respectively

Source: Almutairi. Rheum Int. 2020; Novella-Navarro. Arth Res & Ther. 2020; Bluett. Arth Res & Ther. 2018; Aletha. JAMA. 2018; Eriksson. Arthritis Care Res. 2013; Myasoedova. Rheumatoid Arthritis Clinical Studies. 2010; Census Bureau International Data Base. LoT: Line of Therapy.
Note: Epidemiology does not include the ~300 K Juvenile RA patients under the age of 16 in the U.S. (Prakken. The Lancet. 2011).

Rheumatoid Arthritis Diagnostics Landscape and Pricing Potential

Tc-Tilmanocept is unlikely to face competition from other diagnostics

Rheumatoid Arthritis Diagnostics Landscape

Current Availability of RA Diagnostic Capabilities		
Diagnostic	**Prognostic**	**Therapeutic-guiding**
		

- There are **no therapeutic-guiding RA diagnostics** commercialized or in development that are expected to pose a direct competitive threat to Tc-Tilmanocept
- **Inflammatory blood markers** such as CRP levels, rheumatoid factor, and anti-CCP antibodies may be tested to **complement physicians' clinical diagnosis** of RA or **inform prognosis**
- Quest offers such **RA blood panels for ~$80**, though these panels are poor analogs for Navidea given **they do not provide therapeutic-guiding information**

Radiopharmaceutical Diagnostic Price Range

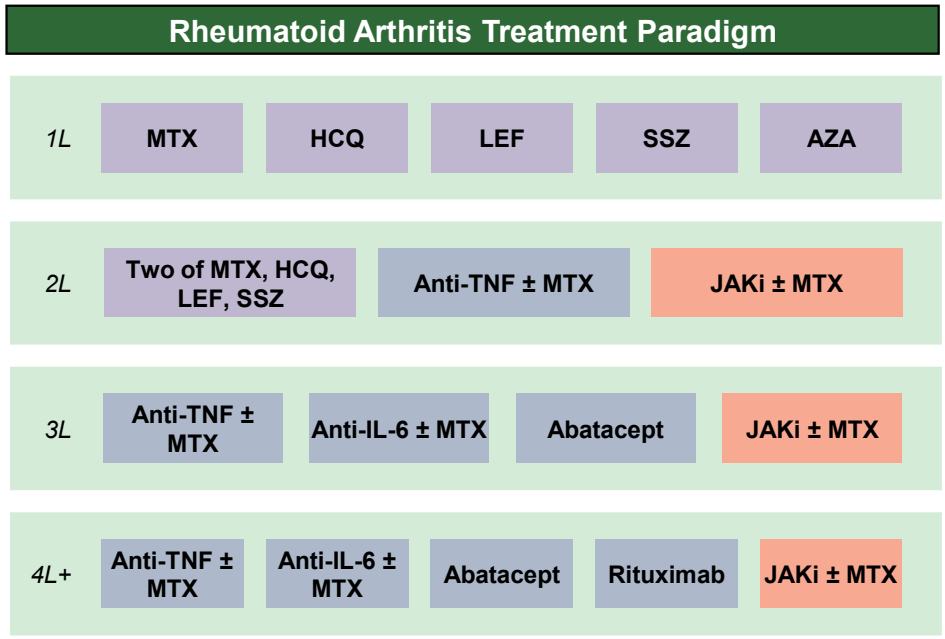
Anticipated Tc-Tilmanocept Pricing and Reimbursement (2021)	CPT Code
	78802

- CMS reimbursement for radiopharmaceutical diagnostics across therapeutic areas range from **$80 – 2,750 in 2021**
- **CPT code 78802** for "radiopharmaceutical localization of tumor, **inflammatory process** or **distribution of radiopharmaceutical agent(s),** (includes vascular flow and blood pool imaging when performed); planar, **whole body**, single day of imaging" may be appropriate for Tc-Tilmanocept in RA given its **coverage of inflammation and whole body imaging**

Source: SNMMI; Company Websites.
1. Annual reimbursement growth rate was 3.5% from 2019 – 2020, 2.6% from 2020 – 2021, and 2.1% from 2021 – 2022. CAGR of 2.1% was chosen to reflect the most recent and conservative rate.

Rheumatoid Arthritis Treatment Paradigm

Anti-TNFs are used in the 2L+, but patients may switch TNFs and receive them across multiple lines of therapy



1L	**MTX is often prescribed** in conjunction with NSAIDs and GCs for rapid symptomatic relief; patients ineligible for MTX **receive alternative single-agent csDMARDs**
2L	For the **~70% of patients** who do not achieve remission after **3 – 6 months of 1L therapy**, physicians most often prescribe **anti-TNFs with or without MTX** or a combination of two csDMARDs
3L	Of the **~80% of patients** who fail 2L, most will receive **alternative anti-TNFs** or JAKis, while patients with severe inflammation may receive IL-6 inhibitors and elderly patients may receive abatacept
4L	**~85% of 3L patients are refractory and progress to the fourth line**, where prescribing behavior is guided by patients' treatment history and highly variable; rituximab may be considered

We anticipate Tc-Tilmanocept to be used in the 2L+ as 1L patients are rarely considered for anti-TNF therapies given csDMARDs represent generic, lower-cost options (often stepped-through by payers)

Source: ACR Guidelines; UpToDate; GlobalData. csDMARD: Conventional Synthetic Disease-modifying Antirheumatic Drug; GC: Glucocorticoid; MTX: Methotrexate; HCQ: Hydroxychloroquine; LEF: Leflunomide; SSZ: Sulfasalazine; AZA: Azathioprine.

Key: csDMARD bDMARD tsDMARD

Summarized Valuation Assumptions

Revenue and Cost Assumptions Summary

Select Revenue Assumptions

- **Addressable Patients:** Adults >16 years with diagnosed RA
- **Overall RA Treatment Rate:** ~94%
- **Prevalent Patients (2024):** ~1.9 M
- **Preference Share:** 45% in 2L patients switching therapies in base case scenario *(Note: Based on secondary research only, pending upcoming physician interviews)*

  78% in upside scenario
- **Annual Tests per Patient:** 1 – 2
- **Compliance:** 40 – 60%
- **Launch Year (U.S.):** 2024

Select Cost Assumptions

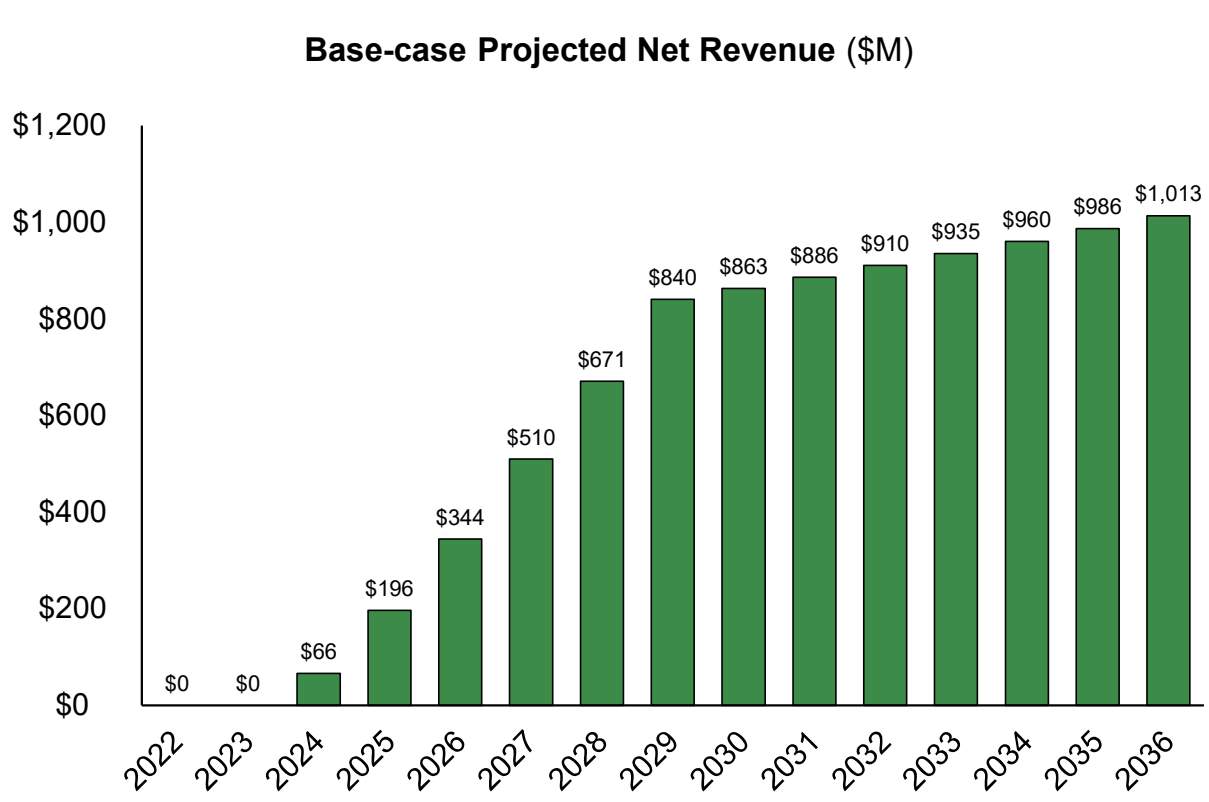
- **R&D and Regulatory Expenses:** Ongoing P2B & upcoming P3; NDA filing
- **SG&A:** high 20% range
- **CAPEX:** low single digit % of sales
- **Corporate tax rate:** 21%
- **Discount rate:** 12% (*Cost of capital estimates assume Navidea partners with a mid-to-large size company for RA commercialization)*
- **Probability of Technical and Regulatory Success (PTRS**): Phase II: 100% Phase III: 68.4% Approval: 80.3% Commercialization: 95% (*Development risk assumptions based on historical precedence by stage for NMEs in autoimmune diseases reported in published literature (Hay. Nature. 2014). Assumes Tc-Tilmanocept has already succeeded Phase 2 based on data to-date.)*

LIFESCI PARTNERS

Tc-Tilmanocept Commercial Opportunity and Valuation

Tc-Tilmanocept Base-case Revenue Projections (U.S.)

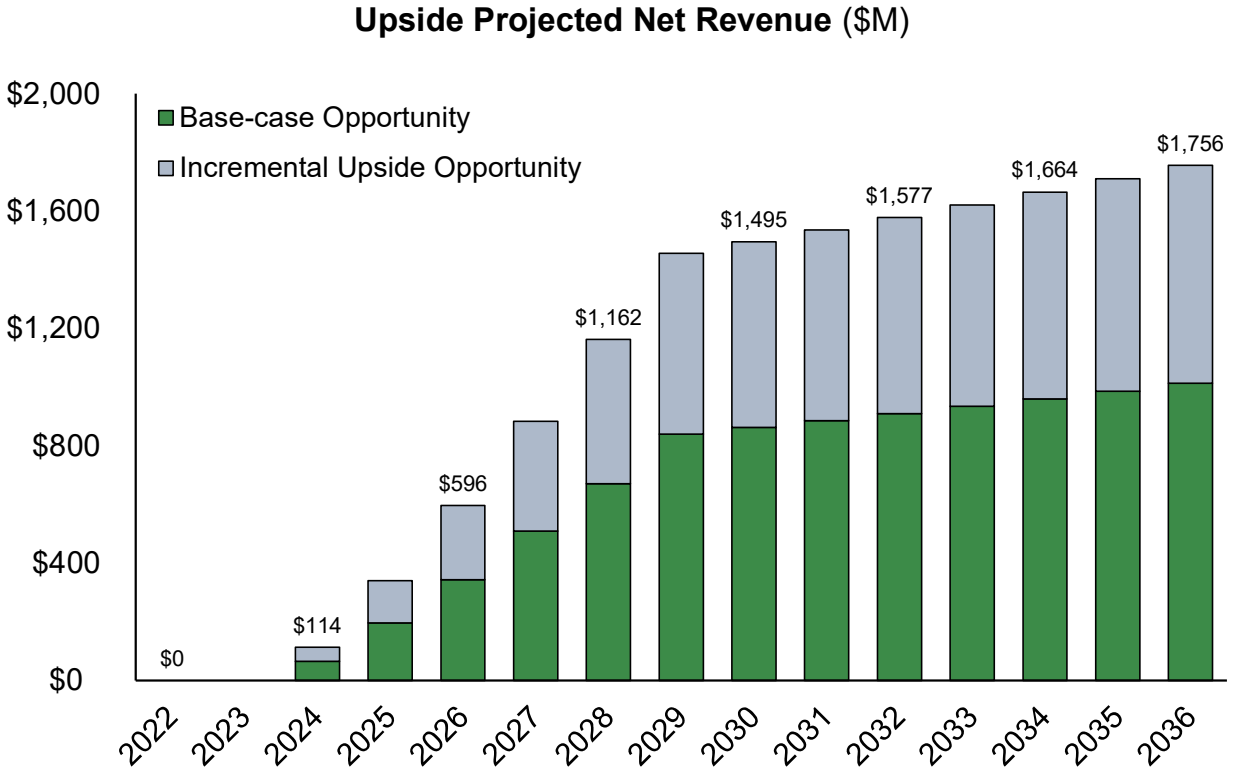
With base-case assumptions, Tc-Tilmanocept may generate ~$1 B in annual U.S. revenue by 2036



Base-case PV Valuation Outputs	
Present Value (PV)	**~$3.0 B**
Risk-adjusted PV (rPV)	**~$1.6 B**
Probability of Success (PoS)	**~52%**
U.S. Peak Sales	**~$1.0 B**
U.S. Cumulative Sales (2022 – 2036)	**~$9.2 B**

Tc-Tilmanocept Upside Revenue Projections (U.S.)

Assuming American College of Rheumatology guideline inclusion boosts share to 78%, peak sales may approach ~$1.8 B



Upside PV Valuation Outputs	
Present Value (PV)	**~$5.2 B**
Risk-adjusted PV (rPV)	**~$2.7 B**
Probability of Success (PoS)	**~52%**
U.S. Peak Sales	**~$1.8 B**
U.S. Cumulative Sales (2022 – 2036)	**~$15.9 B**

Aggregate PV for Tc-Tilmanocept in RA (U.S.)

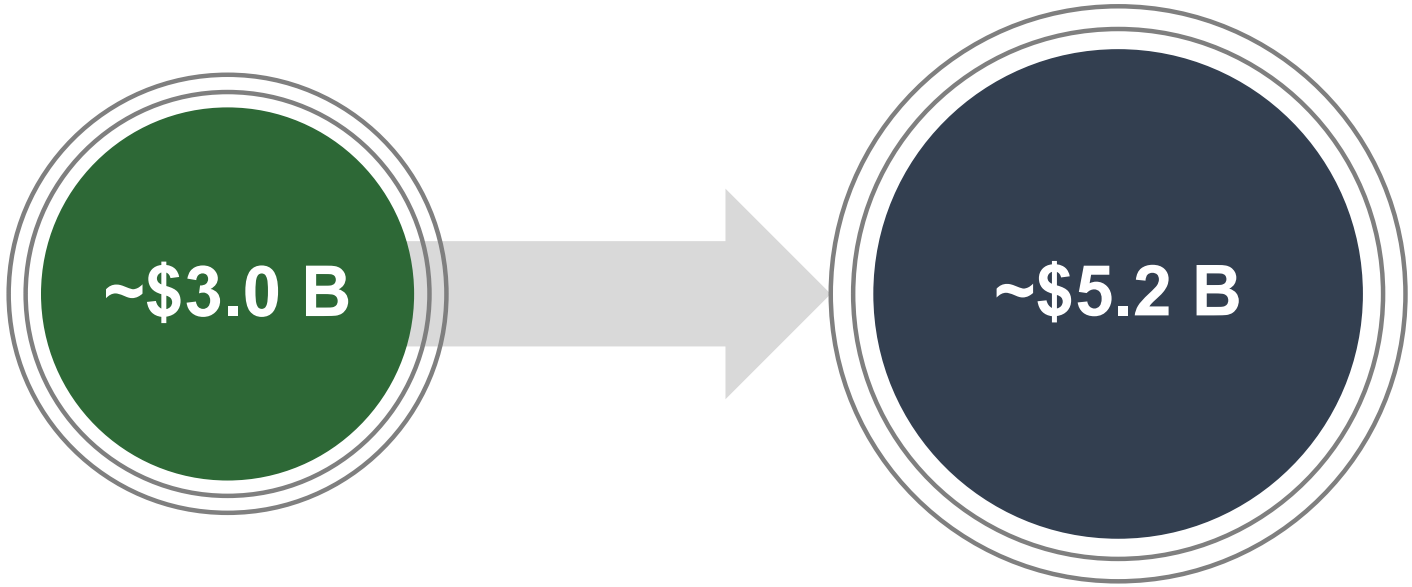
Cumulative revenue from 2022 – 2036 suggests a base-case PV of ~$3.0 B and upside potential of ~$5.2 B

Base-case PV

2L+ Incident Preference Share: 45%
2L+ Prevalent Preference Share: 4.5%

Upside PV

2L+ Incident Preference Share: 78%
2L+ Prevalent Preference Share: 7.8%



Aggregate rNPV for Tc-Tilmanocept in RA (U.S.)

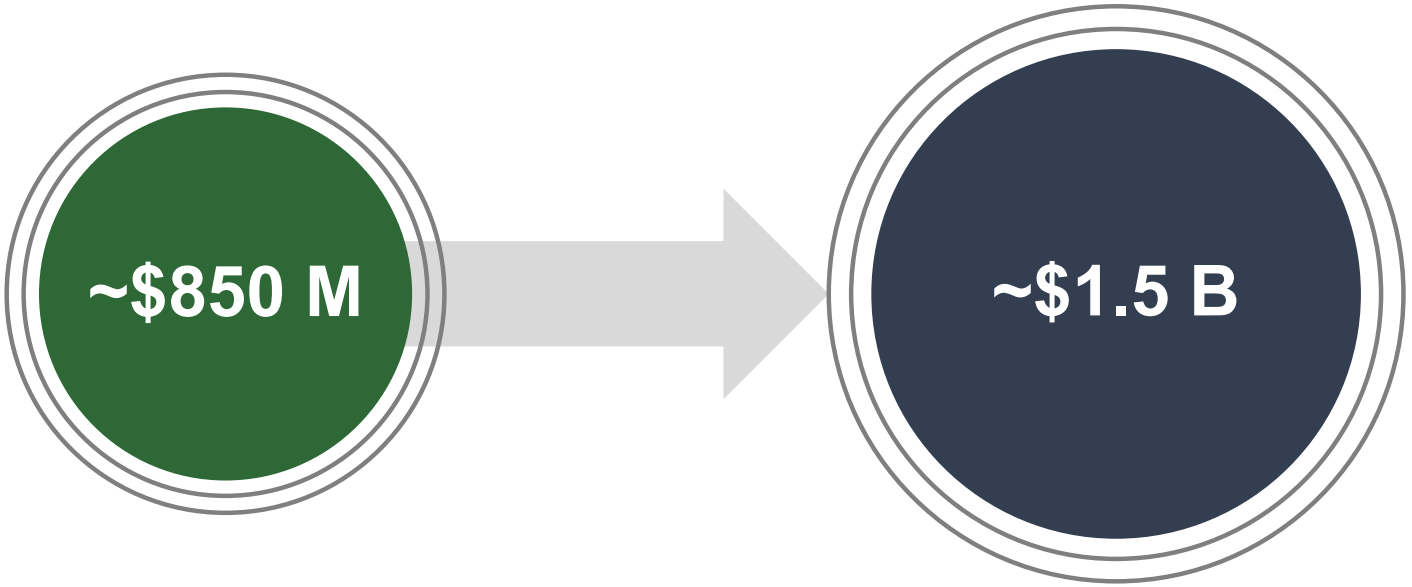
Accounting for revenue, costs, and risk, base-case rNPV may reach ~$850 M with upside potential of ~$1.5 B

Base-case rNPV

2L+ Incident Preference Share: 45%
2L+ Prevalent Preference Share: 4.5%

Upside rNPV

2L+ Incident Preference Share: 78%
2L+ Prevalent Preference Share: 7.8%



Opportunities for Value Add

Multiple levers remain to unlock further Tc-Tilmanocept value in RA

Expansion to Juvenile RA

Label expansion to Juvenile RA in patients <16 years of age may increase total diagnosed prevalence by ~300 K patients in the U.S.

Increased RA Diagnosis Rate

Patient advocacy campaigns and clinical breakthroughs may improve RA's diagnosis rate and increase the diagnosed prevalence

Increased Patient Compliance

Patient advocacy campaigns and increasing comfort with Tc-Tilmanocept over time may bolster patient compliance

Increased Adoption

Marketing campaigns may drive adoption of Tc-Tilmanocept through guideline inclusion and physician preference

Label Expansion to Other RA Drugs

Label expansion for therapeutic-guiding information across RA therapeutic classes will likely drive increased preference share

Registration as a Biomarker

FDA registration for Tc-Tilmanocept's use as a biomarker of CD206 expression in RA joints may spur its use in clinical trials with pharma partners and support its inclusion in guidelines

Source: Prakken. The Lancet. 2011.