POLYPID

OPTIMIZED THERAPEUTICS

INVESTOR PRESENTATION

JUNE 2020

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PolyPid: Experienced Team

Amir Weisberg Chief Executive Officer

- Chief Executive Officer of PolyPid since 2010
- Over 20 years of entrepreneurial and leadership experience within life sciences space

Dikla Czaczkes Akselbrad EVP & Chief Financial Officer

- Joined PolyPid in 2014
- Previously CFO at Compugen (NASDAQ: CGEN)
- BA in Accounting and Economics and an MBA in Finance, both from Tel Aviv University, and is a Certified Public Accountant in Israel

Taunia Markvicka, PharmD Chief Operation Officer US

- Joined PolyPid in 2019
- Over 25 years of pharma experience and previously CCO at Symbiomix and Pacira (NASDAQ: PCRX)

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OPTIMIZED THERAPEUTICS

Innovative Local Medications to Potentially Transform Surgical Practice

PolyPid Overview

PolyPid is a Phase 3 clinical-stage biopharmaceutical company focused on developing targeted, locally administered and prolonged release therapeutics to address diseases with high unmet medical needs

Polymer-Lipid Encapsulation matriX (PLEX) Platform

Our proprietary matrix of several thousand layers of polymers and lipids that physically embed an active drug and enable a customizable, predetermined release rate of up to several months

Lead Product

D-PLEX$_{100}$ is currently in Phase 3 development for the prevention of surgical site infections (SSIs) following abdominal (soft tissue) or post-cardiac sternal (bone) surgeries

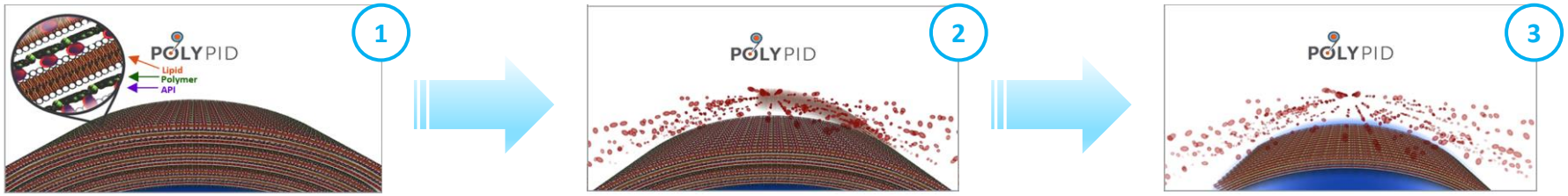
79
issued patents(1)

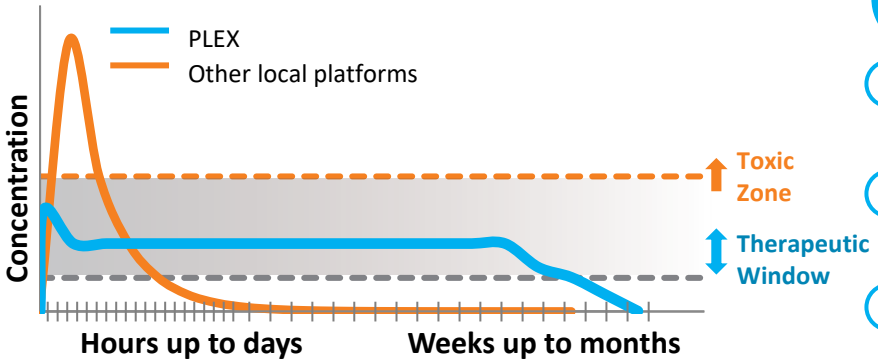
57
employees(2)

HQs
Global: Petach Tikva, Israel
US: Summit, NJ

[1]As of May 31, 2020. [2] As of March 31, 2020.

Our Solution: PLEX Technology





PLEX technology is designed to enable localized and prolonged drug delivery with significantly lower amounts of drug required compared to systemic administration

1. PLEX technology consists of **several thousand layers of polymers and lipids** that physically **embed and protect an active drug** between each layer
2. Drugs stored between the PLEX layers are **released over time** in a controlled manner by the gradual disintegration of the outer layers when they are hydrated
3. The **PLEX matrix protects the stored drug** from the natural enzymes and biochemicals in the body that could potentially change or alter the drug

PLEX technology is designed to be paired with a wide variety of marketed drugs or product candidates to deliver drugs to precise sites in the body at predetermined release rates ranging from several days to several months

Our Initial Focus: Enhancing Post-Operative SSI Prevention

The Current Paradigm

Selected Key Players

Medtronic
TYRX Absorbable Antibacterial Envelope

Johnson & Johnson ETHICON

Smith+Nephew
PICO⁰ 7

3M prevena

Acelity

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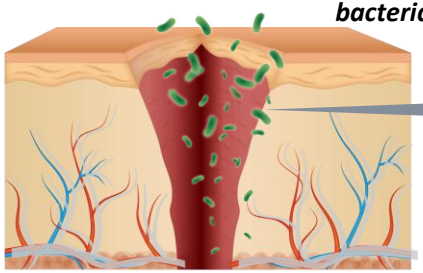
Systemic Antibiotics Are Not Enough

- Systemic antibiotic prophylaxis (IV, Oral) ½ - 1-hour before the surgery is generally used to prevent SSIs
- But because of the surgical incision, the antibiotic penetration into the surgical wound is significantly limited (due to blood flow interruption) [1,2]*

In SSIs, the surgical incision becomes contaminated by bacteria



Our solution: Direct local antibiotic administration at the site

The Goal: effective and safe antibiotic concentrations over prolonged period within the surgical site

*Source: American College of Surgeons and Surgical Infection Society: Surgical Site Infection Guidelines, 2016 Update. Ban et al. J Am CollSurg Vol. 224, No. 1, January 2017 ; New WHO recommendations on intraoperative and postoperative measures for surgical site infection prevention: an evidence-based global perspective - Benedetta Allegranzi et al. The Lancet Infectious Diseases, Vol. 16, No. 12*In CABG, left internal mammary artery (LIMA) harvesting further decrease antibiotic penetration ; Furthermore, Tissue perfusion is impaired in patients with diabetes or atherosclerosis, who are common in CABG / cardiac Surgery. 1 Cefazolin and linezolid penetration into sternal cancellous bone during coronary artery bypass grafting . Martin Andreas et al. European Journal of Cardio-Thoracic Surgery 48 (2015) 758–764 ; 2 Direct sternal administration of Vancomycin and Gentamicin during closure prevents wound infection. Andreas M. et al. Interactive CardioVascular and Thoracic Surgery (2017) 1–5*

The Burden of Surgical Site Infections

Up to 30%

Estimated SSI rate of patients undergoing colorectal surgery[1,2]

7-11 days

Additional post-operative hospital days for patients with SSIs[3]

20%

SSI rate of all health care-associated infections in US hospitals[3]

2-11x

Increased risk of death for SSI patient (up to 40% mortality after deep sternal infection)[1]

$11k-26k

Cost of treatment per infection directly attributable to SSIs

US $10bn EU ~€11bn

Estimated SSI-related incremental annual hospital costs in the US and EU[4, 5]

A Globally Recognized Problem

SSI GUIDELINES: *What's New and What's Not*

CDC — Centers for Disease Control and Prevention

*"**The human and financial costs of treating surgical site infections (SSIs) are increasing**. The number of **surgical procedures performed in the United States continues to rise**, and surgical patients are initially seen with **increasingly complex comorbidities**."*

World Health Organization

*"The **prevention of SSIs is complex and requires** the integration of a **range of preventive measures before, during, and after surgery**. No international guidelines are available…the **prevention of SSIs is a priority for patient safety**."* [6]

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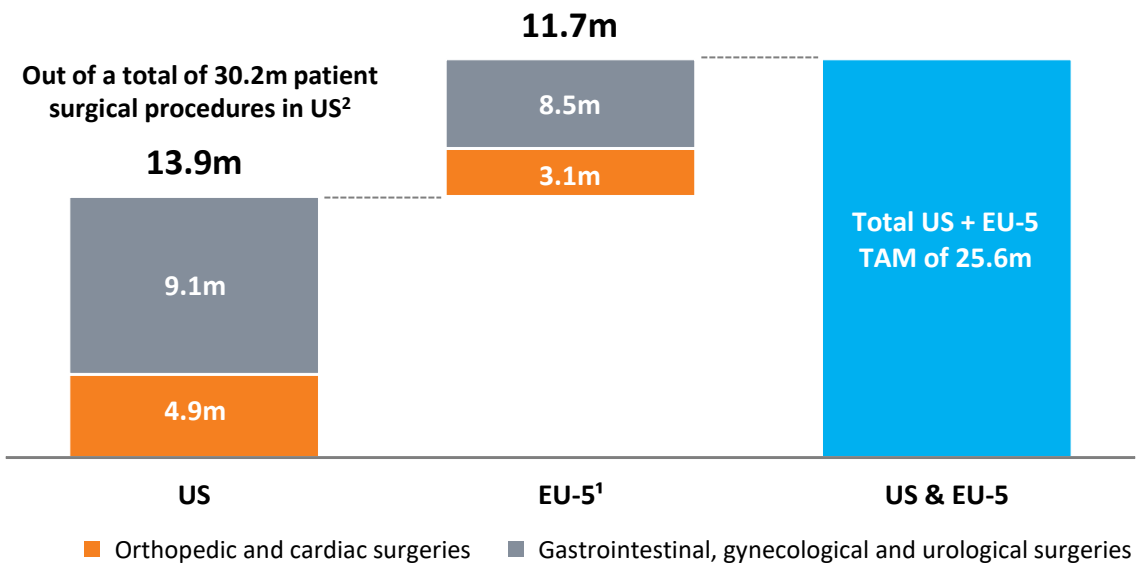
[1] DeverickJ et al, Strategies to Prevent Surgical Site Infections in Acute Care Hospitals: 2014 Update, Infection Control and Hospital Epidemiology, 2014. [2] Estimated figures likely underestimated as ~50% of SSIs become evident only after a patient has been discharged. [3] Financial Impact of Surgical Site Infections on Hospitals. John Shepard and al. JAMA Surg. 2013;148(10):907-914. https://www.cagesideseats.com/wwe/2018/2/6/16980406/big-show-reveals-hip-surgery-complications ; [4]Surgical site infection - a European perspective of incidence and economic burden. Leaper DJ et al. Int Wound J. 2004 Dec;1(4):247-73. [5] ~€11bn represents the midpoint of the range discussed in WHO Global guidelines on the prevention of surgical site infection. Nov 2016: 29 ; [6]New WHO recommendations on intraoperative and postoperative measures for surgical site infection prevention: an evidence-based global perspective. Benedetta Allegranzi et al. Lancet Infect Dis. 2016 Dec;16(12):e288-e303.

SSIs Represent a Large Commercial and Clinical Opportunity

Total Addressable Market in US and EU: Major Open Surgeries[3]

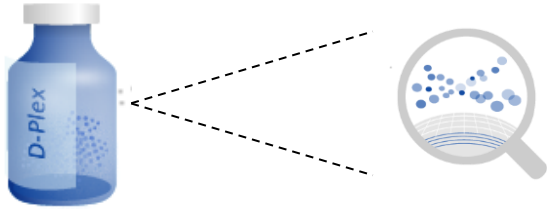


Highlights

- Large addressable market
- Unmet medical need
- Growth opportunity
- Pharmacoeconomic benefit

[1]Includes France, Germany, Italy, Spain and the United Kingdom, based on the number of procedures performed in 2015, according to a study PolyPid commissioned. [2] CDC- all-listed surgical and nonsurgical procedures for discharges from short-stay hospitals, by selected procedure categories: United States, 2010, https://www.cdc.gov/nchs/data/nhds/4procedures/2010pro4_numberrate.pdf. [3]As of 2017.

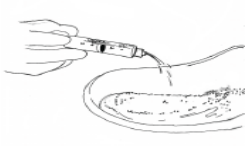
D-PLEX$_{100}$ is Potentially Transformative for the Prevention of SSIs



Antibiotic drug reservoir

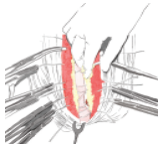
PLEX^{TM} matrix + antibiotic

1. Pour



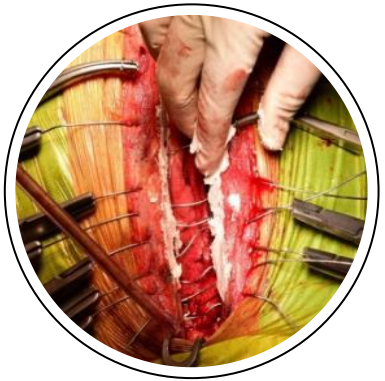
2. Hydrate

3. Mix



4. Apply

SURGICAL SITE INFECTION



Example of surgeon spreading the D-PLEX$_{100}$ paste in open-heart surgery

D-PLEX$_{100}$: locally-administered doxycycline

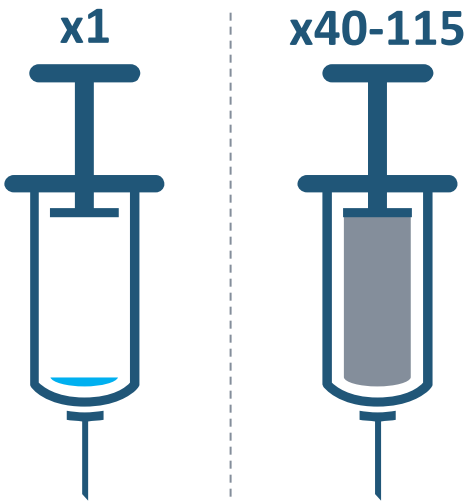
- ✓ Administered **directly in the surgical site**
- ✓ Local delivery that generates a therapeutically effective concentration of antibiotic over **prolonged duration** (4 weeks)
- ✓ **Simple administration** that requires no additional training

Source: BCC research report

A Small Single Dose of D-PLEX$_{100}$ is Sufficient for High Local Concentrations for Several Weeks

Local delivery of doxycycline

55-164 mg



Systemic formulation of doxycycline

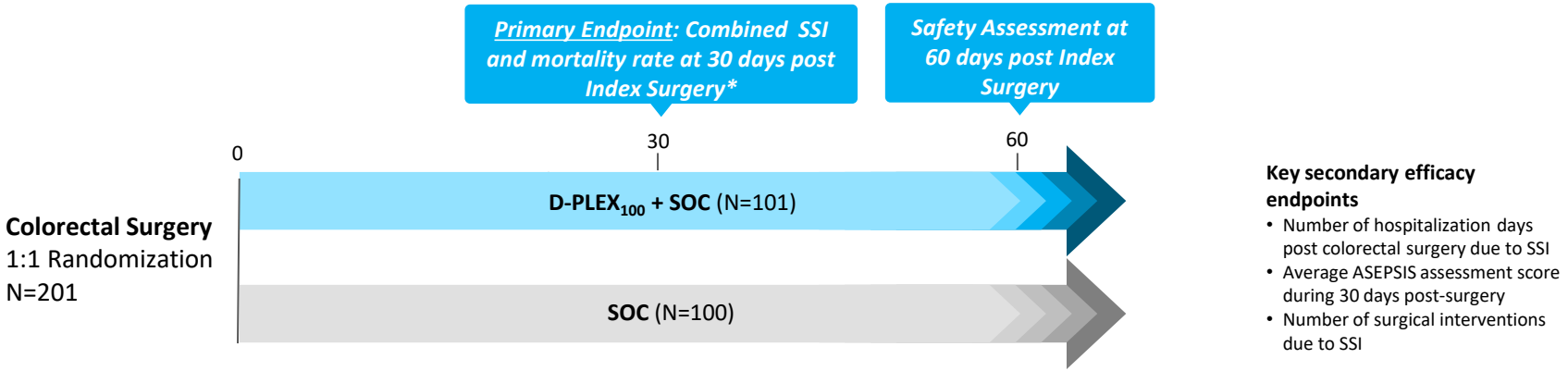
60 pills = 6,000 mg

D-PLEX$_{100}$ is designed to provide prolonged delivery following single administration and subsequent high local concentrations and has the potential to supersede existing antibiotic delivery systems, and may offer advantages over systemic treatments in the prevention of SSIs, including against many antibiotic-resistant bacterial strains

Phase 2: D-PLEX$_{100}$ for the Prevention of SSIs in Post Abdominal (Soft Tissue) Surgeries

Assess efficacy and safety of D-PLEX$_{100}$ for prevention of deep and incisional SSI after elective abdominal colon surgery

(prospective, multicenter, randomized, controlled, two arm study)



Key secondary efficacy endpoints

- Number of hospitalization days post colorectal surgery due to SSI
- Average ASEPSIS assessment score during 30 days post-surgery
- Number of surgical interventions due to SSI

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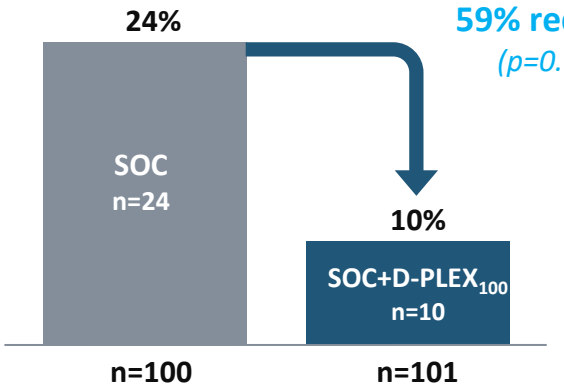
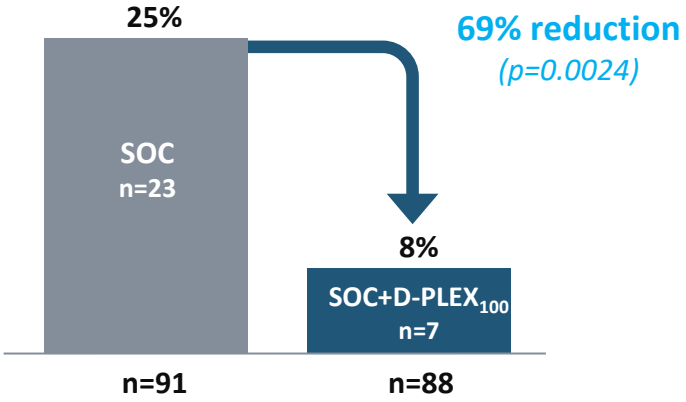
** SSI include Superficial and Deep SSIs ; Combined primary endpoint as confirmed by a Blinded and independent adjudication committee*

Positive Phase 2 Results in Abdominal Surgery

Primary Endpoint* ITT Analysis



Primary Endpoint - Per Protocol Analysis



- **5 deaths observed in the SoC treatment arm, as compared to zero observed in the D-PLEX$_{100}$ +SOC treatment arm within the first 60 days post-surgery *(p=0.0290)***
- **Generally well tolerated, with no confirmed drug-related SAEs and no increase in wound healing impairment at the incision site as compared to control**

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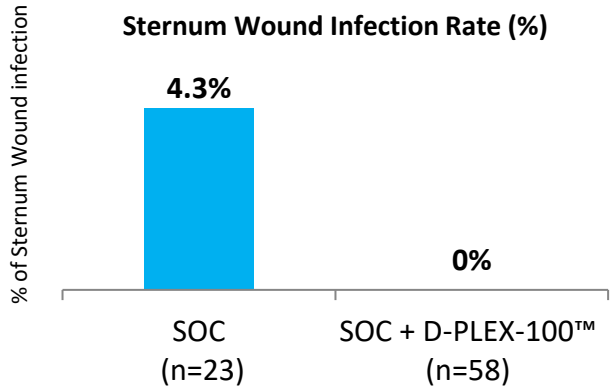
** PEP is the Combined SSI and mortality rate which is measured by the number and proportion of subjects with either an SSI event (as determined by the abdominal surgery) or mortality or any reason within 30 days post index surgery.*
Note: The current standard of care for preventing SSIs involves the implementation of a range of treatment and prevention measures before, during and after surgery, including prophylactic antibiotic administration, antiseptic measures and wound care.

D-PLEX in Sternal / Bone Surgeries

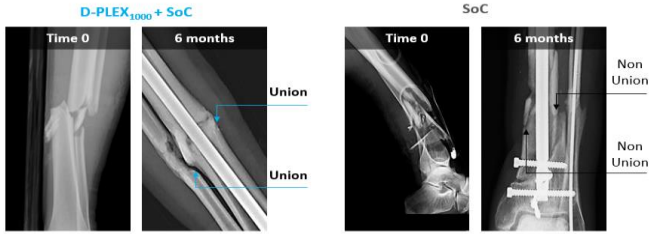
D-PLEX$_{100}$: P1b / 2 Open Heart Surgery Results[1]



No Sternal Wound Infection in 58 Treated patients
(Based on recent literature, we would have expected ~3-5 patients with SWIs in the D-PLEX$_{100}$ treatment group and 1-2 patients in the SoC control group) [6-10]

D-PLEX$_{1000}$: Open-Tibia Fractures[11]

	D-PLEX$_{1000}$ + SoC	SoC
Deep bone infections[2] / non-union[3] rate (%)	**0%** (0/24)	**11.1%** (3/27)



No deep bone infections after 6 months across 24 treated patients, in comparison with reported incidences in the literature ranging between 7% to 19%[4-5]

No treatment related SAEs

1 Modified ITT results, based on 3 months follow-up Clinical Study Report; [2] One event ; [3] Two events where another surgery and implantation of bone graft was needed ; [4] Prodromidis et al. The 6-Hour Rule for Surgical Debridement of Open Tibial Fractures: A Systematic Review and Meta-Analysis of Infection and Nonunion Rates. 2016 ; [5] Poletti FL et al. Current Concepts and Principles in Open Tibial Fractures - Part II Management and Controversies. 2017. [6] Adding vancomycin to perioperative prophylaxis decreases deep sternal wound infections in high-risk cardiac surgery patients. Reneike S. et al. European Journal of Cardio-Thoracic Surgery (2017) 1–7 [7] Direct sternal administration of Vancomycin and Gentamicin during closure prevents wound infection. Andreas M. et al. Interactive CardioVascular and Thoracic Surgery (2017) 1–5 [8] Prevention of surgical site sternal infections in cardiac surgery: a two-centre prospective randomized controlled study. Schimmer C et al. European Journal of Cardio-Thoracic Surgery (2016) 1–6. [9] Based on 3 months follow-up interim report. [10] Surgical Site Infections Volume-Outcome Relationship and Year-to-Year Stability of Performance Rankings. Calderwood MS. et al. Med Care 2017;55: 79–85; [11] Predecessor product candidate to D-PLEX100.

Multiple Trials Completed and One Potentially Pivotal Phase 3 Trial Underway

5
completed
clinical trials

c.400
patient data set

Supportive
clinical data

Phase 3

- First abdominal surgery Phase 3 study expected to start in early Q3, 2020
- Ongoing Phase 3 in Open Heart Surgery (Sternum)

Phase 3 Trial in Bone Tissue (Sternum) Underway

SHIELD

Surgical site **H**ospital acquired **I**nfection pr**E**vention with **L**ocal **D**-**plex**

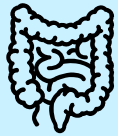
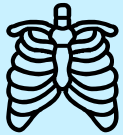
Study	Design
Sternum (open-heart surgery) Phase 3 Study	• 1,284 – 1,600 patients ; 45 centers in US, EU and IL

Phase 3 Trials in Soft Tissue (Abdominal) Planned

Study	Design
1st Abdominal surgery Phase 3 study	• 616 - 900 patients ; 60 centers in US, EU and IL
2nd Abdominal surgery Phase 3 study	• 900 – 1,400 patients ; 60 centers in US, EU and IL

382 patients involved in clinical studies in both treatment and control arms.

Pipeline Summary

Product candidate and indication	Preclinical	Phase 1	Phase 2	Phase 3	Key milestones
 **D-PLEX$_{100}$** Prevention of SSI **in soft tissue (abdominal)**	Two Phase 3 Trials				• Phase 2 Results released in Oct. 2019 • IND Submitted in May 2020 • Top-Line Results from First Phase 3 Trial Expected by End of 2021
 **D-PLEX$_{100}$** Prevention of SSI **in bone tissue (sternum)**					• First Patient Enrolled in Feb. 2020[(1)]
 **PLEX$_{ONCO}$** Intertumoral therapy					• Preclinical Stage

Unencumbered, late-stage pipeline with near-term value inflection

[1] *In December 2019, we initiated a potentially pivotal Phase 3 clinical trial of D-PLEX$_{100}$ for the prevention of sternal SSIs after cardiac surgery and, subject to feedback from the FDA, we plan to continue development of D-PLEX$_{100}$ for the prevention of SSIs in patients undergoing abdominal surgery. We intend to pursue a broad label for D-PLEX$_{100}$ for the prevention of SSIs, the scope of which will depend on the clinical data generated from our potentially pivotal Phase 3 clinical trials and discussions with the FDA and the EMA.*

Regulatory and Commercial Strategies for D-PLEX$_{100}$

- **Two Qualified Infectious Disease Product (QIDP) designations from the FDA.**
  - QIDP status provides total of eight years* of market exclusivity for D-PLEX$_{100}$ upon FDA approval.
- **Investigational New Drug (IND) Application cleared by the FDA in November 2018.**
- **FDA Fast Track status received in November 2018.**

CMS
CENTERS FOR MEDICARE & MEDICAID SERVICES

NTAP

CMS add-on payment has been improved for QIDP designed antibiotics used under IPPS: increase of the NTAP from 50% to 75%

Outpatient Code

J-Code support additional reimbursement in the outpatient setting (both CMS & Commercial Payers)

DISARM Act

If approved, the new legislation would allow Medicare add-on payment to inpatient hospitals that use a qualifying DISARM antibiotic to treat a serious or life-threatening infection.

Subject to feedback from the FDA, we intend to pursue a broad label for D-PLEX$_{100}$ for the prevention of SSIs

**Eight years exclusivity is comprised of five years exclusivity from QIDP status and 3 years from the 505(b)(2) regulatory pathway*

D-PLEX$_{100}$ Could Provide Clinical Benefit in Broad Surgical Population

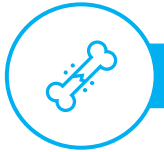
Soft Tissues

General Surgeries

- Open Abdominal/GI/Colorectal Surgeries
  - Stomach & Intestinal
  - Herniorrhaphies
  - Colorectal
  - Cholecystectomies
  - Appendectomies

Selected Gynecological / Urological Surgeries

Hysterectomies ; Salpingo-Oophorectomies & Oophorectomies ; Breast Reconstruction ; Prostatectomies ; Nephrectomies



Bone Tissues

Cardiac

- Open-Heart Surgeries (CABG, valve repair / replacement, heart / lung transplant, congenital defect repair)

Orthopedic

- Fractures
- Hip Arthroplasties (primary + Revision)
- Knee Arthroplasties (primary + Revision)
- Spine Fusions (Cervical, Thoracic and Lumbar)

US market represents c.14M major surgeries [1,2]

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[1] based on Current Clinical Development program and regulatory strategy ; [2] Mainly major Open-surgeries (except for Colorectal Surgeries)

State-of-the-Art Manufacturing Facility

PolyPid was granted Manufacturer Authorization and Good Manufacturing Practice (GMP) certification by Israel's Ministry of Health (IMOH) and EU qualified person for its state-of-the-art ~10,500 square feet GMP manufacturing facility

Strong and Experienced Leadership

Amir Weisberg Chief Executive Officer

- Chief Executive Officer of PolyPid since 2010
- Over 20 years of entrepreneurial and leadership experience within the life sciences space

Dikla Czaczkes Akselbrad EVP & Chief Financial Officer

- Joined PolyPid in 2014
- Previously CFO of Compugen
- BA in Accounting and Economics and an MBA in Finance, both from Tel Aviv University, and is a Certified Public Accountant in Israel

Noam Emanuel PhD Chief Scientific Officer

- Co-founder of PolyPid and served as its CEO during the company's first three years
- Extensive expertise covering immunotherapy, vaccines, immunodiagnostics and drug-delivery
- PhD from the Faculty of Medicine at the Hebrew University of Jerusalem

Taunia Markvicka, PharmD Chief Operation Officer US

- Joined PolyPid in 2019
- Over 25 years of pharma experience and previously CCO at Symbiomix and Pacira

Shaul Mukhtar, PhD EVP & Chief Operating Officer

- Joined PolyPid in 2019
- Previously SVP, Chief Operating Officer and Regional R&D Manager, Teva Japan & South Korea

Dalit Hazan VP R&D and Regulatory Affairs

- Joined PolyPid in 2016
- Over 20 years regulatory experience in a range of global life sciences companies

Summary

POLYPID is poised for potential near-term value creation

- Pursuing expedited development pathway
- Large and growing target market
- Broad applicability of PLEX technology
- Near-term value inflection points
- Strong management team