

Phase 1b Trial Update: Evaluating Tegoprubart For The Prevention of Rejection In Patients Undergoing Kidney Transplantation

November 2, 2023



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Photo: Gertrude "Trudy" Elion, inventor of azathioprine and recipient of Nobel Prize in Medicine in 1988.

## Tegoprubart: Transplantation Focused Pipeline in a Product Opportunity

		DEVELOPMI			
Indications	Pre-clinical	Phase 1 / Early Human Trials	Phase 2	Phase 3	
Kidney Transplantation					<ul> <li>Phase 2 BESTOW and ex-US Phase 1b enrolling</li> <li>Sub-cutaneous formulation completed non-human primate study</li> </ul>
Xenotransplantation					<ul> <li>Cardiac xenotransplantation performed at University of Maryland</li> <li>eGenesis &amp; academic collaborations</li> </ul>
Liver Transplantation					Academic collaboration
Amyotrophic Lateral Sclerosis (ALS)					<ul> <li>Seeking non-equity dilutive financing to advance program to Phase 3</li> </ul>





Kidney Transplantation Immunosuppression Market Represents a Multi-Billion Dollar Commercial Opportunity

#### **Large Patient Population**





People living with a functioning kidney transplant

90,000+ Americans on transplant waiting list 5,000 Americans per year die waiting for a kidney transplant

~15% of U.S. adults on waitlist are waiting for repeat transplants



# Kidney Transplants Annually 25,000+ 21,000+

Average age transplant U.S. **50 years old** Average organ only functions **10-15 years**  Many patients require repeat transplants

#### Heavy Economic Burden

#### End Stage Renal Disease & Transplant

\$50+ Billion annual U.S. Medicare expenditure including Kidney Transplantation costs of \$420,000+ / transplant

Medicare covers cost of immunosuppressive transplant drugs, regardless of patient age, if patient does not have other insurance

Global organ transplant immunosuppressant market size estimated **\$5.3+ billion**  Astellas reported tacrolimus global revenues ~\$1.5B in FY2022 (Prograf, first FDA approval 1994)

#### Early graft failure of transplanted kidneys

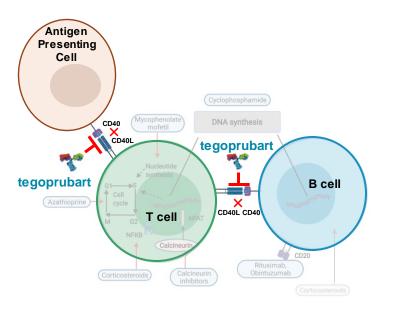
\$150,000+ average incremental U.S., medical costs / patient year after graft failure

Patients returning to dialysis: ▼ quality of life < 50% 5-year survival rate Re-transplants deplete an already inadequate donor organ pool



## Mechanism Overview of CD40L Inflammatory Signaling

#### CD40/CD40L Pathway and Tegoprubart Site of Action

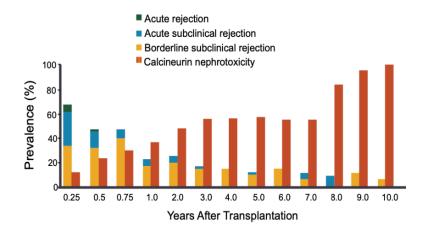


- Interaction of CD40 with CD40Lon immune cells mediates activation of the co-stimulatory immune pathway, controlling "cross talk" between the adaptive and innate immune systems
- Maximal activation of inflammatory system is a 3-step process requiring co-stimulatory signaling
  - Step 1: Major histocompatibility complexes (MHC) and CD3/TCR engagement
  - Step 2: CD40 and CD40L binding resulting in cell division and clonal expansion
  - **Step 3:** Pro-inflammatory response by polarized T cells expressing inflammatory chemokines and cytokines
- Blocking CD40L shifts polarization away from proinflammatory signaling to T cell anergy, apoptosis, and polarization to a Treg environment
  - Blocking CD40L thus does not generally result in lymphopenia often seen with immunosuppressive agents



Removing CNIs May Stop the Cycle of Transplantation and Subsequent CNI Related Graft Failure

# CNI side effects are a leading cause of kidney graft failure over time....



# ....and can lead to a cycle of transplantation and graft failure

#### CNI Associated Kidney Damage

- Nephrotoxicity
- Hypertension
- Diabetes

Transplant

\$440,000+ avg. cost per U.S. patient

#### **Graft Failure**

\$150,000+ avg. incremental medical costs per patient post graft failure

#### **Dialysis & Kidney Wait List**

- ~15% of adults on waitlist are for repeat transplants
- ~15% to 20% mortality rate in 1<sup>st</sup> year of dialysis



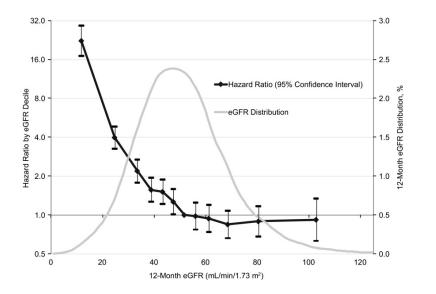
## Distribution of eGFRs Using Standard of Care Post Transplant: Median ~51 mL/min/1.73m2 in First Year

	No. of			eGFR Value (mL/min/1.73 m <sup>2</sup> ) at Listed Percentiles				Percentage in Listed eGFR (in mL/min/1.73 m <sup>2</sup> ) Categories						
Time Posttransplant	Centers	Patients	eGFR Values	5th	25th	50th	75th	95th	≥90	60-89	45-59	30-44	15-29	<15
Discharge	11	23,053	18,393	11	31	45	60	86	4	21	26	26	15	9
1 mo	8	22,597	12,715	21	38	50	62	85	4	25	32	27	10	2
3 mo	9	21,894	12,887	26	40	51	63	86	4	27	33	28	8	1
6 mo	9	21,212	13,272	26	40	51	62	84	3	26	35	28	7	1
1 y	12	19,989	13,671	25	39	50	61	83	3	24	34	29	9	1
2 y	10	17,449	11,298	23	38	49	62	83	3	25	32	28	11	1
Зу	11	15,103	10,221	22	37	49	61	83	3	24	31	29	12	2
4 y	10	12,806	8,520	21	37	48	61	84	3	23	31	28	12	2
5у	10	10,620	7,269	21	36	48	61	83	3	23	29	30	13	2

Abbreviations: CKD, chronic kidney disease; eGFR, estimated glomerular filtration rate.

## Kidney Allograft Function is an Early Predictor of Future Graft Failure

eGFR at 12 months is associated with subsequent death-censored graft failure



- Graft function measured using eGFR at 12 months post transplant is associated independently with subsequent graft failure
- Of multiple covariates, 12-month eGFR is the strongest predictor of graft failure



# Phase 1b and Phase 2 Kidney Transplantation Studies are Running in Parallel

Up to 12 participants undergoing kidney transplantation

> Canada, UK and Australia

#### 52-week, open label, single arm study

ATG induction therapy plus

#### CNI-free maintenance therapy with tegoprubart

(as a replacement for tacrolimus) as part of a maintenance immunosuppressive regimen including mycophenolate and a corticosteroid taper

#### **Primary endpoints:**

Safety & tolerability

#### Secondary endpoints:

- Graft function (eGFR)
- · Participant and graft survival
- Biopsy proven acute rejection (BPAR)
- · Immune cell infiltrate of graft biopsy
- Biomarker measures of kidney injury and rejection risk

#### Phase 2 "BESTOW"

~120 participants (60/arm) undergoing kidney transplantation

U.S. and other countries

#### 52-week, head-to-head, superiority study

ATG induction therapy plus

#### CNI-free maintenance therapy with tegoprubart or tacrolimus

as part of a maintenance immunosuppressive regimen including mycophenolate and a corticosteroid taper

#### **Primary endpoints:**

- Graft function (eGFR)
- Safety & tolerability

#### Secondary endpoints:

- · Participant and graft survival
- Biopsy proven acute rejection (BPAR)
- · Immune cell infiltrate of graft biopsy
- Rate of new onset diabetes mellitus (NODAT)
- Biomarker measures of kidney injury and rejection risk



## Phase 1b Kidney Transplantation: Demographics & Disposition

Participant	Age/Gender	Ethnicity	Donor	Underlying Disease	Days Post TxP (DS: Discontinued Study)	Status
1	60/F	White	Living	Polycystic Kidney Disease	217 (DS)	Discontinued study on day 217 due to alopecia and fatigue
2	77/F	White	Deceased	Diabetes	380	
3	62/M	White	Living	Cystic Disease	54 (DS)	Discontinued study on day 54 due to Polyomavirus viremia
4	68/M	White	Living	Diabetes	217	
5	23/F	Asian	Living	Glomerulonephritis	181	
6	44/M	White	Deceased	Polycystic Kidney Disease	154	
7	65/M	White	Living	Type 1 Diabetes	146	
8	57/F	White	Living	Diabetes	83	
9	35/M	Other	Living	Glomerulonephritis	75	
10	56/F	White	Living	Polycystic Kidney Disease	60	
11	59/M	White	Living	Diabetes	43	



## Phase 1b Kidney Transplantation: Treatment Emergent Adverse Events

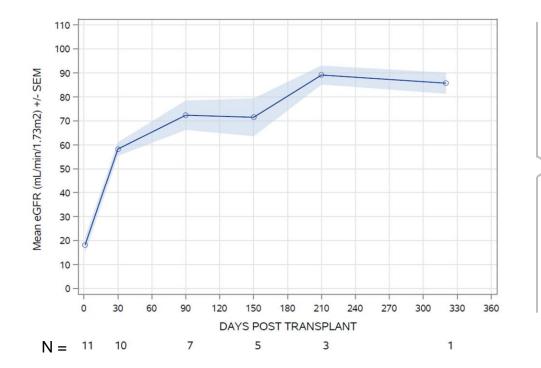
System Organ Class	Preferred Term	N (%)		
	Diarrhea	5 (45%)		
Gastrointestinal	Constipation	4 (36%)		
ouounina	Nausea	3 (27%)		
	Vomiting	2 (18%)		
Infections	Polyomavirus viremia	4 (36%)		
inections	Urinary tract Infection	2 (18%)		
Procedural Complication	Complications of Transplant Surgery	3 (27%)		
ricedular complication	Procedural pain	2 (18%)		
Direct and Laurahadia Contant	Leukopenia	2 (18%)		
Blood and Lymphatic System	Neutropenia	2 (18%)		
Cardiac	Tachycardia	2 (18%)		
Company	Oedema peripheral	2 (18%)		
General	Pyrexia	2 (18%)		
Metabolism	Hypoglycemia	2 (18%)		
Metabolism	Hypophosphatemia	2 (18%)		
Musculoskeletal and Connective Tissue	Back pain	2 (18%)		
Skin and Subcutaneous tissue	Alopecia	2 (18%)		
Vascular	Hypertension	2 (18%)		
vascular	Hypotension	2 (18%)		

\* Occurring in 2 or more study subjects as of October 13, 2023. Of all the reported TEAEs, 7 events experienced by 3 subjects are reported as serious. These SAEs include neutropenia, acute kidney injury, T-cell rejection, Polyomavirus viremia, anterior abdominal wall collection, and hyperkalemia

- 1 participant experienced a T cell mediated rejection (Banff score 1a). The patient was treated and remains in the study
- 1 patient experienced a surgical related acute tubular necrosis on day 0 (prior to administration of study drug) which impacted their kidney function. The patient continues to be in the study
- No cases of hyperglycemia, new onset diabetes, tremor, or cytomegalovirus infection



## Phase 1b Kidney Transplantation: Mean eGFR Over Time



- Aggregate mean eGFR was above 70 mL/min/1.73m2 at all reported time points after day 90
- One participant completed the 12-month study with an eGFR of 91 on day 374, and is now enrolled in a Phase 2 open-label extension study

Note: Estimated glomerular filtration rate (eGFR) as of October 19, 2023, calculated using the chronic kidney disease epidemiology collaboration (CKD-EPI) creatinine equation. N is the number of participants at that time contributing data to mean eGFR calculation.



Source: ASN, November 2, 2023.

## Phase 1b Kidney Transplantation: Summary Conclusions

- Data from 11 participants demonstrates tegoprubart successfully prevented kidney transplant rejection and was generally safe and well-tolerated
- Aggregate mean eGFR was above 70 mL/min/1.73m2 at all reported time points after day 90, supporting tegoprubart's potential to better protect organ function than with regimens using calcineurin inhibitors, the current standard of care
- Eledon next plans to report updated data from the Phase 1b trial mid-2024





## **Eledon Pharmaceuticals**

19900 MacArthur Blvd., Suite 550 Irvine, California 92612, USA info@eledon.com +1 949-238-8090

