# Dimerix Overview

(ASX: DXB)
a phase II biotech with a scalable, proprietary
platform technology

March 2020



# Forward looking statements

This presentation includes forward-looking statements that are subject to risks and uncertainties. Such statements involve known and unknown risks and important factors that may cause the actual results, performance or achievements of Dimerix to be materially different from the statements in this presentation.

Actual results could differ materially depending on factors such as the availability of resources, the results of clinical studies, the timing and effects of regulatory actions, the strength of competition, the outcome of legal proceedings and the effectiveness of patent protection.



# Corporate Snapshot (ASX:DXB)











#### **Research Coverage**

**Taylor Collison** 

20Nov2019

Rating: Buy

Price Target: A\$0.51

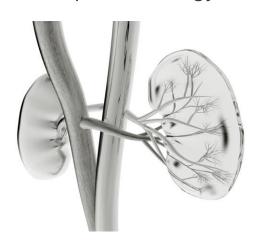




## A pipeline of drugs identified using Receptor-HIT

#### **Dimerix Technology Platform**

- Patented tool that enables understanding of real-time receptor interactions, particularly GPCRs
- Can drive the discovery of new drugs and research programs
- Programs based on the critical scientific rationale that GPCRs act as a complex with other GPCRs and have novel pharmacology when in complex





#### **Strategic Fit**

- Dimerix is developing a commercial pipeline of drugs for G Protein-Coupled Receptors (GPCR) largely targeting chemokine pathway diseases with a clear unmet need
- Dimerix can utilise its current core **competencies** and **capabilities** to execute on the disclosed opportunities
- Dimerix has identified new uses for existing drugs to drive the discovery of new drugs and research programs
- Dimerix has **multiple products** in its pipeline, at different development stages, **diversifying** risk and increasing potential future sources of revenue



# Development pipeline

3 product candidates in the pipeline, with 2 clinical read outs expected mid-2020

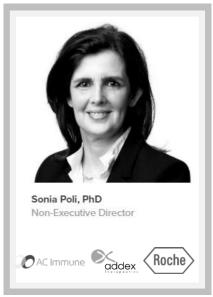
Compound	Disease Target	Preclinical	Phase 1	Phase 2	Pivotal Study	Market
DMX-200	Focal Segmental Glomerulosclerosis (FSGS)	Phase 2a	last patient dosin	g June 2020		
DMX-200	Diabetic Kidney Disease	Phase 2 la	st patient dosing	July 2020		
DMX-700	Chronic Obstructive Pulmonary Disease (COPD)					
DMX-XXX	Undisclosed (various)	0				



# Board of Directors & Management

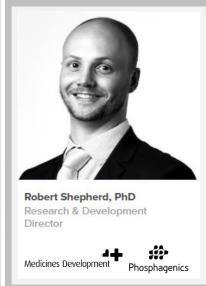








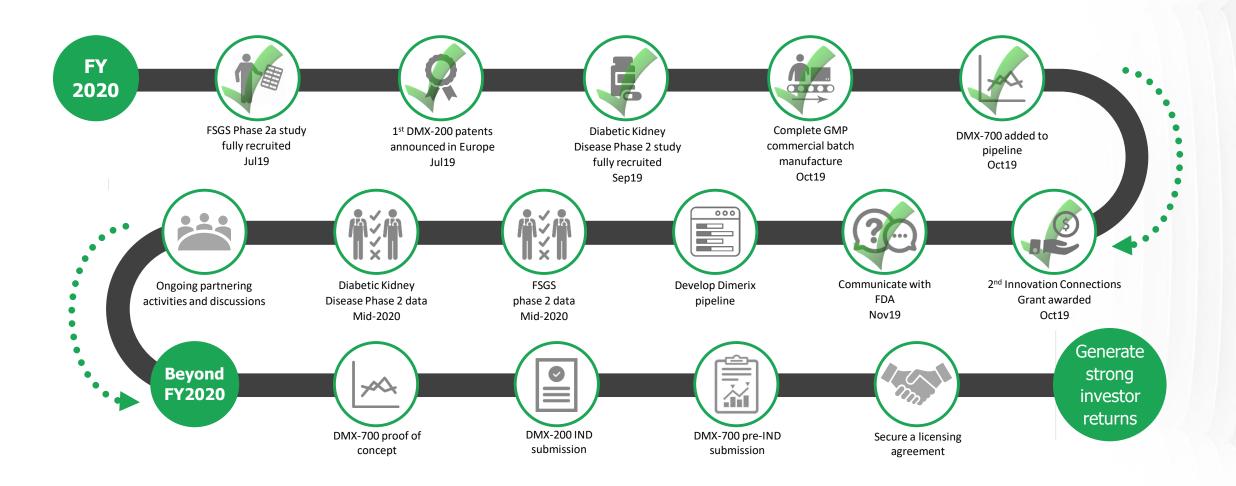




Extensive experience in global product development and commercialisation



# Financial Year 2019/2020 value driving events







# Introduction to DMX-200

## What is DMX-200

DMX-200: a small molecule known as propagermanium for patients already receiving angiotensin receptor blockade

- Twice daily, capsule administration
- Inhibits activity of a cellular receptor of inflammation: CCR2 (C-C Chemokine Receptor Type 2)
- Administered to patients already on standard of care treatment (angiotensin receptor blocker)
- Product attributes: deliver best-in-class benefits to patients
- Never been approved by a regulatory authority in the US, Europe or Australia
  - DMX-200 is a New Chemical Entity\* (NCE)

\*NCE can attract 5 years exclusivity in US and EU (7 years in US and 10 years in EU for Orphan Drugs)



# Causes of kidney disease

Chronic Kidney disease: slow, gradual loss of kidney function



Several causes of kidney disease:

Autoimmune disease (e.g. IgA nephropathy)

Hereditary nephritis (e.g. Alports Syndrome)

Sclerotic kidney disease (e.g. FSGS and diabetic kidney disease)



over time, inflammation leads to scarring

Infection related nephritis (e.g. HIV)



# DMX-200 proposed mechanism of action

DMX-200 addresses three key mechanisms that causes renal damage and sclerotic kidney disease

hyperfiltration of and hypertension within blood vessels of the glomeruli

inflammatory cell infiltration of the loss of specialised cells called Podocytes (cannot

> regenerate) from the glomeruli

Irbesartan blocks cellular receptors responsible for hyperfiltration & glomerular hypertension

DMX-200 inhibits chemokine receptor (CCR2) which initiates attraction of inflammatory cells into the kidneys

Certain kidney cells express both receptors, thus using only 1 compound does not block activation and results in only a partial response

DMX-200 unique proposition: total benefit is greater than the sum of the two individual effects

kidneys: subsequent

fibrosis

# Competitive advantage

Current standard of care (AT1R blocker)

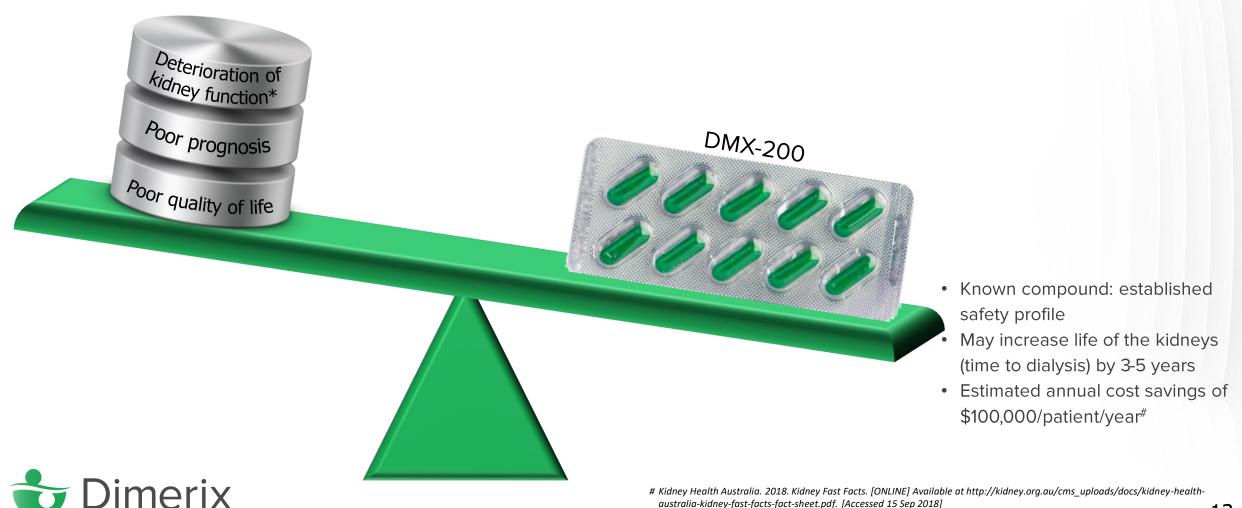
➤ Large unmet need in growing market

DMX-200 compares favourably to compounds currently in development:

- Strong, superior efficacy data
  - ➤ 36% reduction in proteinuria in Phase 2a
- Known safety profile with no adverse events seen
  - > Lower risk development



## DMX-200 value: patients, payers & healthcare system



<sup>\*</sup> Kidney Health Australia. 2018. Diabetic Kidney Disease. [ONLINE] Available at https://kidney.org.au/cms\_uploads/docs/diabetic-kidney-disease--kidney-health-australia-fact-sheet.pdf [Accessed 11Sep18]

# Diabetic kidney disease market dynamics



US market size 2018<sup>^</sup>

US\$5.8 billion



Market growth will accelerate at a CAGR (2019-2022)<sup>^</sup>
5.1%



**Growth** originating from the Americas<sup>‡</sup>

48%



Diabetic patients that have kidney disease\*
40%



The market is highly concentrated, with few players occupying market share<sup>‡</sup>



Current standard of care control blood pressure levels: Angiotensin receptor blockers (ARBs)\*



Diabetic kidney disease is the **leading cause** of Chronic Kidney Disease Worldwide\*



Key driver is the rise in diabetes global incidence<sup>^</sup>

<sup>^</sup> Market Research Future (2020); Diabetic Neuropathy Treatment Market Research Report – Global Forecast to 2025 [ONLINE Available at https://www.marketresearchfuture.com/reports/diabetic-neuropathy-treatment-market-8359 [Accessed 02Mar20]

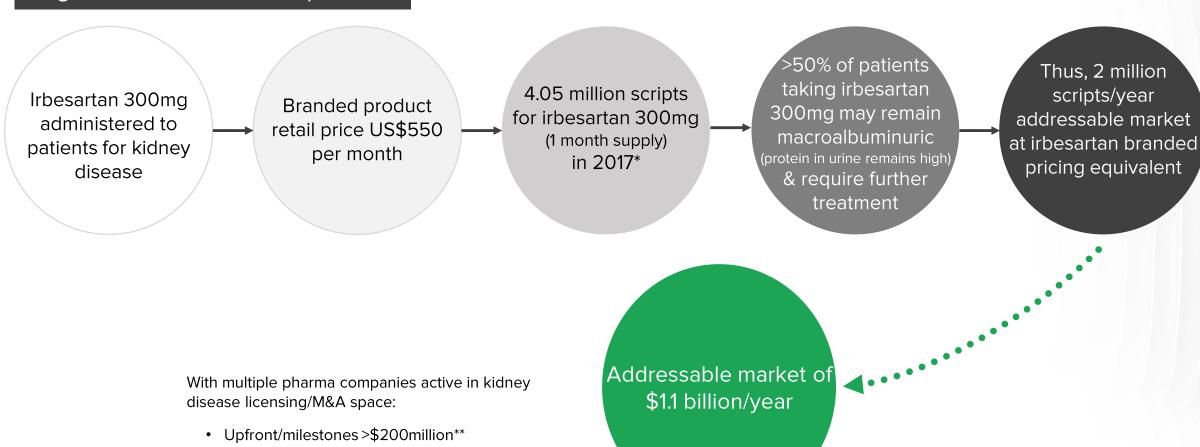


<sup>\*</sup> Alicic R, Rooney M, Tuttle K (2017) Diabetic Kidney Disease Challenges, Progress, and Possibilities, Clinical Journal of American Society of Nephrology [ONLINE Available at https://cjasn.asnjournals.org/content/12/12/2032 [Accessed 02Mar20]

<sup>†</sup> Technavio (2019); Global Diabetic Nephropathy Market 2018-2022 [ONLINE Available at https://www.businesswire.com/news/home/20181227005118/en/Global-Diabetic-Nephropathy-Market-2018-2022-34-CAGR [Accessed 02Mar20]

## DMX-200 for diabetic kidney disease value in US

## Large market with low competition



+ royalties



# pre-genericization

\*2017, IQVIA

† Avapro prescribing information

\*\* Ionis, Vifor, Epigen deals in 2018

# FSGS market: serious and rare kidney disease



Orphan indication currently with no FDA-approved therapies<sup>‡</sup>

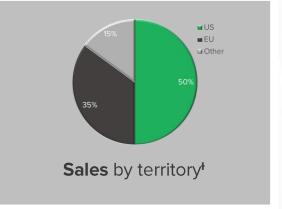


US incidence<sup>†</sup>

80,583



Market growth will accelerate at a CAGR (2017-2025)# >8.0%





Across all nephrotic syndromes, FSGS accounts for \*\*

- 40% cases in adult
- 20% cases in children



30%-40% of FSGS transplant patients:

FSGS disease recurs^



Approximately 5 years from diagnosis to end-stage renal disease<sup>‡</sup>



More than 5,400 new cases diagnosed each year in US^

#### DMX-200 has US and EU Orphan Drug Designation for FSGS

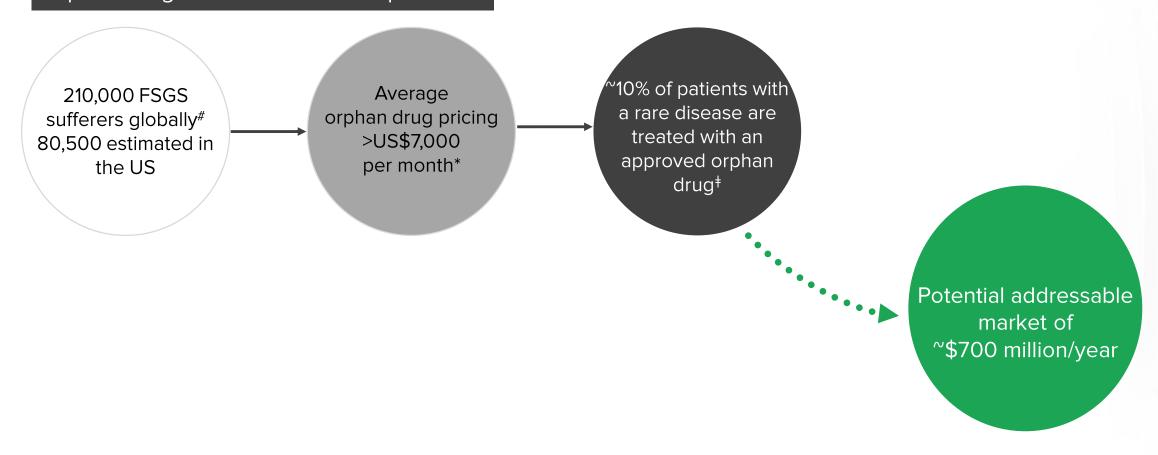


- \* Sangameswaran K, Baradhi K; (2019) Focal Segmental Glomerulosclerosis [ONLINE Available at //www.ncbi.nlm.nih.gov/books/NBK532272/ [Accessed 02Mar20]
- ^ Nephcure Kidney International (2020); Focal Segmental Glomerulosclerosis [ONLINE Available at https://nephcure.org/livingwithkidneydisease/understanding-glomerular-disease/understanding-fsqs/ [Accessed 02Mar20]
- Rosenberg A, Kopp J (2017); Focal Segmental Glomerulosclerosis, Clinical Journal of American Society of Nephrology [ONLINE Available at https://cjasn.asnjournals.org/content/12/3/502 [Accessed 02Mar20]
- DelveInsight Market Research Report (2020); Focal Segmental Glomerulosclerosis (FSGS)- Market Insight, Epidemiology and Market Forecast -2030 # Transparency Market Research (2019); Focal Segmental Glomerulosclerosis (FSGS) Market [ONLINE Available at https://www.transparencymarketresearch.com/focal-segmental-glomerulosclerosis-market.html [Accessed 02Mar20]

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## DMX-200 for FSGS value in US

## Orphan drug status with low competition





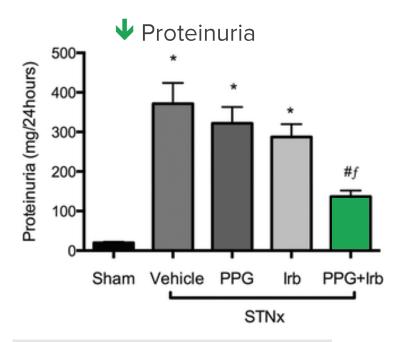
<sup>\*</sup>Transparency Market Research, 2018, Focal Segmental Glomerulosclerosis (FSGS) Market, Global Industry Analysis, Size, Share, Growth, Trends, & Forecast 2017-2025, [ONLINE] Available at: https://www.transparencymarketresearch.com/focal-segmental-glomerulosclerosis-market.html [accessed 21Nov18]

<sup>\*2018,</sup> IQVIA, Orphan Drugs in the United States: Growth Trends in Rare Disease Treatments, [ONLINE] Available at: https://www.iqvia.com/-/media/iqvia/pdfs/institute-reports/orphan-drugs-in-the-united-states-growth-trends-in-rare-disease-treatments.pdf [accessed 19Jun19]

<sup>&</sup>lt;sup>‡</sup>2018, IQVIA , Orphan Drugs in the United States: Exclusivity, Pricing and Treated Populations, [ONLINE] Available at: https://www.iqvia.com/-/media/iqvia/pdfs/institute-reports/orphan-drugs-in-the-united-states-exclusivity-pricing-and-treated-populations.pdf [accessed 19Jun19]

## Pre-clinical: reduction in proteinuria in STNx rats

The STNx model is broadly recognised as the gold standard model for FSGS



PPG: Propagermanium (CCR2 antagonist)

Irb: Irbesartan

\* P<0.05 vs sham

# P<0.05 vs un-treated STNx

f P<0.05 vs STNx+lrb

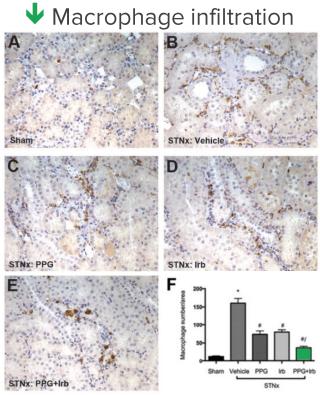


Fig 7. WT-1 (podocyte) staining from STNx rats. As illustrated by representative photomicrographs, in comparison with sham rats (A), STNx rats (B) were associated with a significant increase in podocyte loss. Treatment of STNx rats with either PPG (C) or Irb (D) alone did not affect podocyte loss significantly, whereas treatment with PPG+Irb (E) was associated with reduced podocyte loss. Magnification x400. Quantitative data (F) are expressed as mean ± SEM. \*, P < 0.05 vs sham; #, P < 0.05 vs vehicle-treated STNx rats. Animal numbers: Sham = 20. STNx = 19. STNx+Irb = 19. STNx+Irb = 19. and STNx+PPG+Irb = 16.

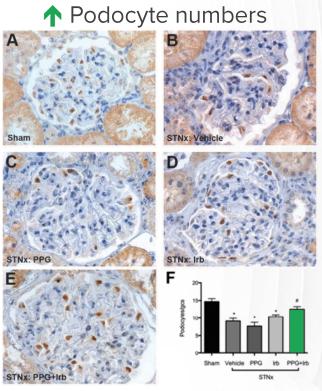


Fig 8. Glomerulosclerosis in STNx rats. As illustrated by representative photomicrographs, in sham rats (A) there was minimal glomerulosclerosis as determined by PAS stain, while STNx rats (B) demonstrated severe glomerulosclerosis. Intervention with PPG alone in STNx rats had no effect on reducing glomerulosclerosis (C). Treatment of STNx rats with Irb (D) or a combination of PPG+Irb (E) was associated with a significant reduction in glomerulosclerosis when compared to vehicle-treated STNx rats (B). Magnification x400. Quantitative data (F) are expressed as mean ± SEM. \*, P < 0.05 vs sham; #, P < 0.05 vs vehicle-treated STNx rats. Animal numbers: Sham = 20, STNx = 19, STNx+PPG = 17, STNx+Irb = 19 and STNx+PPG+Irb = 16.



CMC NDA package suitability confirmed with FDA

# Clinical experience





## 2017: DMX-200 Phase 2a results summary (N=27)

## Chronic Kidney Disease patients

#### **Primary Endpoints ("safety")**

- Incidence and severity of Adverse Events
- Clinically significant changes in the safety profile of participants (biochemistry, hematology, urinalysis, physical examinations)

#### Secondary Endpoints ("efficacy signals")

 The proportion of responders, defined as those participants achieving normalisation of proteinuria or a 50% reduction in proteinuria

#### All endpoints met:

safe and well tolerated

#### Responders

- 6/24 patients had a 50%
   decrease in ACR majority were
   diabetic kidney disease patients
- Sub-group statistically significant and compelling result





## 2017: DMX-200 Phase 2a study - diabetic sub-group

- In 2001 Irbesartan studied in a large group of type 2 diabetics
  - Proteinuria levels reduced by 24%
- In 2017 DXB Phase 2a study: DMX-200 + Irbesartan

In addition to irbesartan reduction, proteinuria levels reduced by a further 36% in diabetic sub-group

Reduction of proteinuria by >30% may increase time to dialysis by 3-5 years and reduce health costs by \$100,000 per patient per year

## 

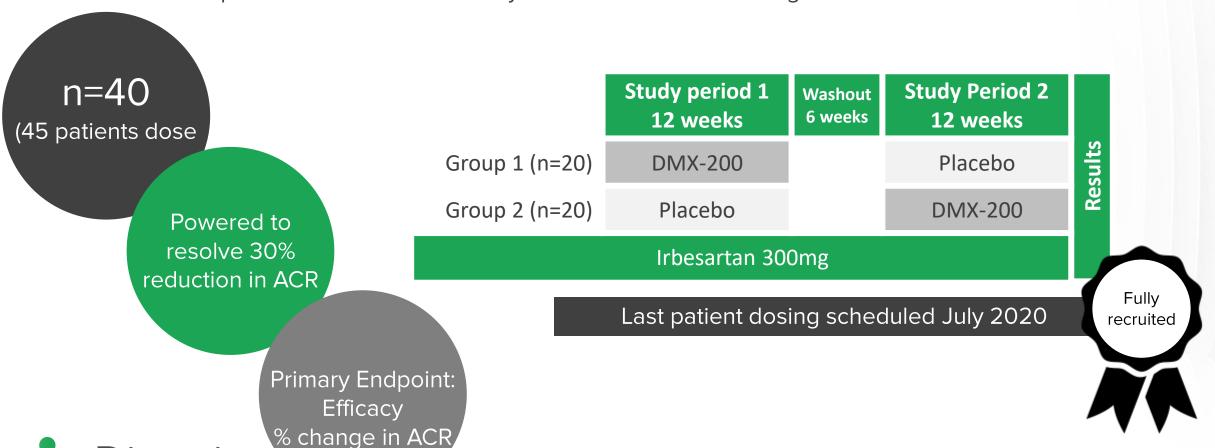
First dose of DMX-200

Diabetic sub-group ACR mean reduction (n=10)



# Current Phase 2 trial in diabetic kidney disease

• Phase 2, double-blind, randomised, placebo-controlled, crossover study evaluating the safety and efficacy of DMX-200 in patients with diabetic kidney disease who are receiving a stable dose of Irbesartan



## Current Phase 2 trial in diabetic kidney disease

Primary endpoint

Percent change from baseline in 24-hour ACR after 11/12 weeks of treatment with DMX-200 as compared to placebo (mean of 2 values)

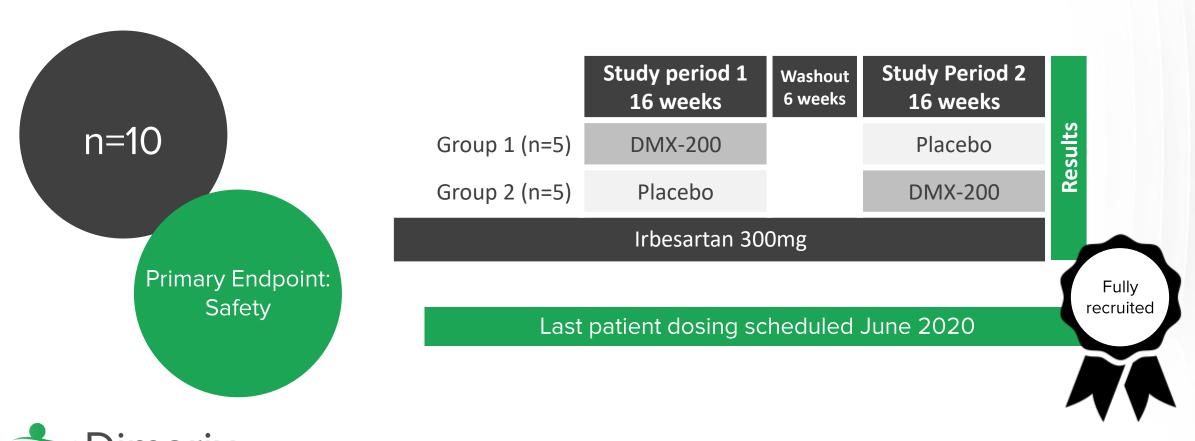
# Secondary endpoints

- Assessment of frequency of patients who achieve an albuminuriabased response during treatment (reduction of ≥ 30% geometric mean ratio);
- Change from baseline after treatment with DMX-200 as compared to placebo in:
  - > ACR:
  - ➤ PCR;
  - > Total albumin excretion;
  - > Total protein excretion;
  - > Serum creatinine;
  - > Creatinine clearance;
  - ➤ eGFR
- Confirm the safety of DMX-200



## Current Phase 2a trial in FSGS

• Phase 2a, double-blind, randomised, placebo-controlled, crossover study evaluating the safety and efficacy of DMX-200 in patients with primary FSGS who are receiving a stable dose of Irbesartan



## Current Phase 2a trial in FSGS

Primary endpoint

The Number of Adverse Events with the Adjunct use of Propagermanium Compared to Placebo in Participants with FSGS who are Receiving Irbesartan

# Secondary endpoints

- Percent change from baseline in 24-hour PCR after 16-weeks of treatment with propagermanium as compared to placebo (mean of 2 values);
- Proportion of patients who achieve a response during treatment with propagermanium as compared to placebo



# Special Access Scheme for compassionate use





Multiple patients from both 2017 Phase 2a and current Phase 2 study remain on DMX-200 via SAS through multiple physicians

- Special Access Scheme (SAS): access to therapeutic goods that that have not yet been approved in Australia on a case by case basis
- Application made to the Therapeutic Goods Administration (TGA Australian regulatory agency) by the treating physician
- TGA approval takes into account the safety profile of DMX-200, as well as clinical evidence that DMX-200 may benefit patients and failure of any current therapies
- TGA approved SAS Category B applications for DMX-200
- Dimerix supplies the drug product once approved



# Chemistry, Manufacturing and Control



US based contract manufacturer appointed for commercial supply of API



FDA approved manufacturing facility



US based manufacturer engaged for finished product manufacture



Analytical methods validated



Commercial scale GMP batch manufacture completed

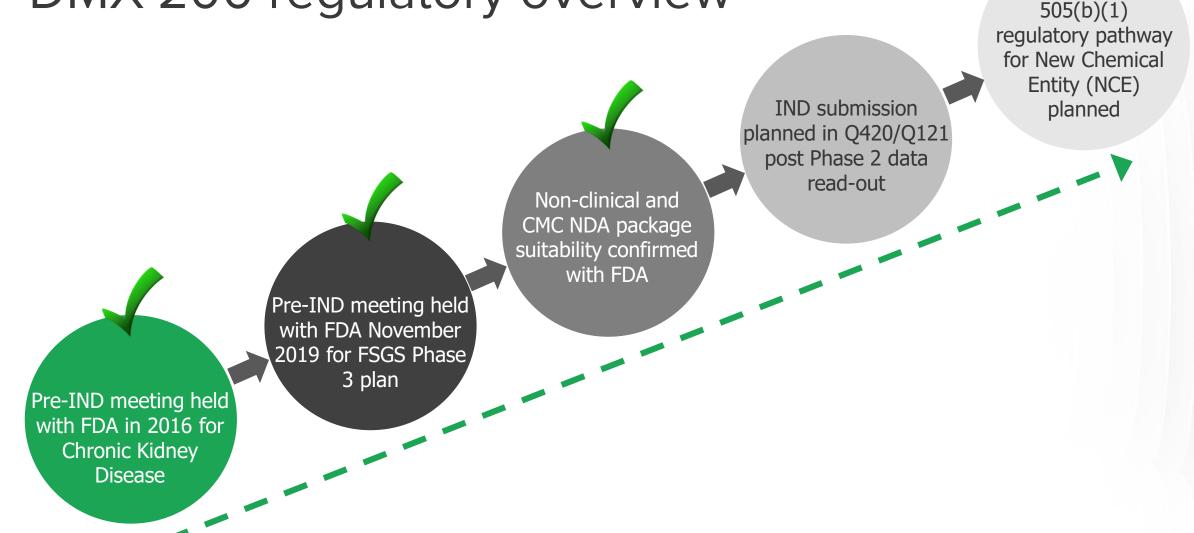


Exclusive development and methodology to manufacture API owned by Dimerix

CMC NDA package suitability confirmed with FDA



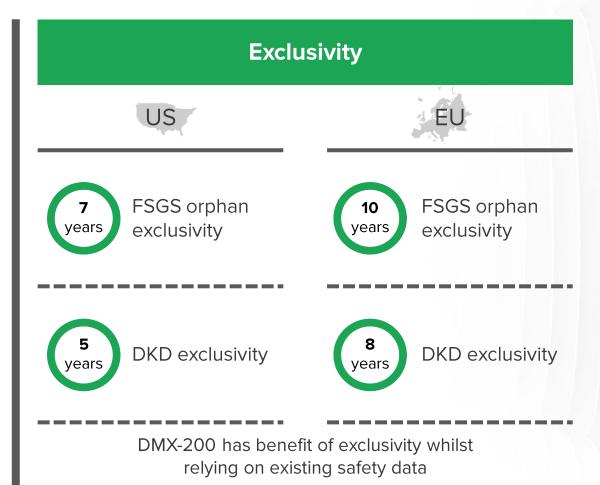
DMX-200 regulatory overview





# DMX-200 Intellectual property and exclusivity

#### **Intellectual Property** US Method of use: Method of use: any CCR2 antagonist 2032 DMX-200 with with any ARB for any irbesartan kidney disease **Granted patents** Granted patents US 9,314,450 EP 2663304 US 10,058,555 US 10,525,038 Patent applications with Patent applications with alternative claims filed alternative claims filed





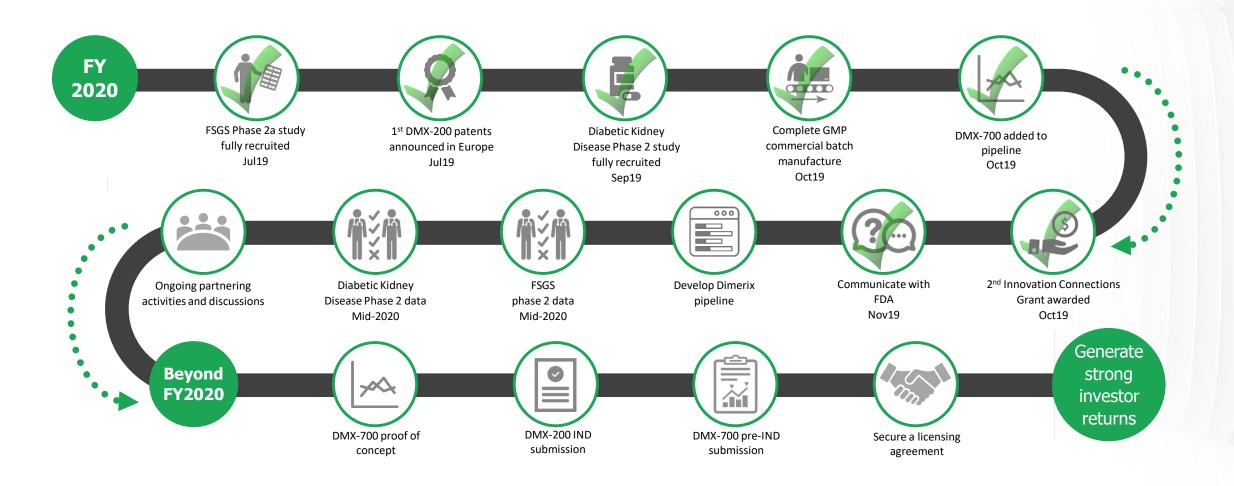
Additional granted patents in other key territories

# DMX-200 summary

- ✓ Commercially attractive and growing market
- ✓ Orphan status with FDA and EMA
- ✓ Unmet need, with no current competition
- ✓ Granted patents with additional patents pending
- ✓ Existing long-term safety data available
  - Reduced risk and development program
- ✓ Product supply at commercial scale secured
- ✓ Phase 2 data expected mid-2020
- ✓ FDA confirmed non-clinical and CMC NDA package suitability and phase 3 study design principles
- ✓ DMX-200 approved for compassionate use in Australia following physician recommendation



# Financial Year 2019/2020 value driving events





# DIMERIX

**End of Presentation** 

