Nucleus Network

Advancing medicine, improving lives.

Australia's Clinical Regulatory Framework & Clinical Trial Site Capabilities

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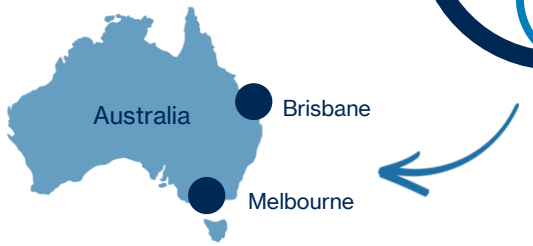
What we will cover:

- Overview: The Australian Advantage
- Global regulatory requirements for clinical entry
- Australian timeline and regulatory framework
- Other factors
- Overview: Nucleus Network
- Local experience and capabilities
- Testimonials

'Selecting the best location and partner to ensure optimal returns and data reliability.'

The Australian Advantage

Australia continues to build its reputation as a country of choice for the conduct of early phase clinical trials.



Speed

- One of the fastest regulatory approvals processes in the world
- No IND required
- Clinical Trial approval ~ 4-5 weeks

Quality

- Data generated is acceptable to the FDA, EMA, PMDA and Health Canada regulatory bodies.
- FDA, EMA and ANVISA inspection approvals
- KOLs & Research Hubs

Cost

- Government R&D Tax Scheme up to 43.5% rebate
- A recent client received $1.14 million rebate
- Advantageous exchange rate, up to 60% cheaper than the USA

FDA – MHRA – TGA

Different requirements by jurisdiction

Items Required for Approval of Phase 1 Studies Across the Three Jurisdictions	USA FDA/IRB	UK MHRA	Australia TGA/HREC
Investigator's Brochure (IB)	●	●	●
Protocol	●	●	●
Informed Consent Form	●	●	●
Non-clinical summary reports	●	●	
Non-clinical final reports (CTD module 4)	●		
GCP Non-clinical data in SEND data sets	●		
CMC Documentation for drug substance(s) and product (CTD module 2 QOS & 3 or sections of IMPD)	●	●	
QP Declaration (if non-EU product)		●	
Clinical Trial Notification (CTN)			●
All of above included in IND or CTIMP	●	●	

Documents Required for Approval/Notification

Starting Point: Preclinical summary reports, IB, protocol and drug product ready

Item to Prepare	Timeline	Cost
Final Preclinical Reports	8-12 weeks	$50k
SEND Datasets	8-12 weeks	$150k
CMC Documentation for module 3	12 weeks	$100k
Prepare IND application	8 weeks	$150k
FDA review	30 days	$700
IRB review	3-7 days	$4k

20-38 weeks to complete

Item to Prepare	Timeline	Cost
CMC Documentation for IMPD	12 weeks	$100k
Prepare CTIMP application	8 weeks	$100k
MHRA review	14 days	$4k

16-22 weeks to complete

Item to Prepare	Timeline	Cost
HREC review	4 weeks	$8k
CTN Preparation	2 weeks	$380

6 weeks to complete

Timeline & Regulatory Framework

Australia's regulatory framework – 2 Steps

STEP 1:

Submission to Human Research Ethics Committee (HREC)

Approval typically 4 weeks

Local HREC & Private HREC options [NOTE: **National Mutual Acceptance (NMA**) for Multisite trials]

Submission requirements:

- Protocol
- Investigator's Brochure
- ICF (Generated by site)

STEP 2:

Notification to the TGA via the CTN Scheme

Notification performed electronically

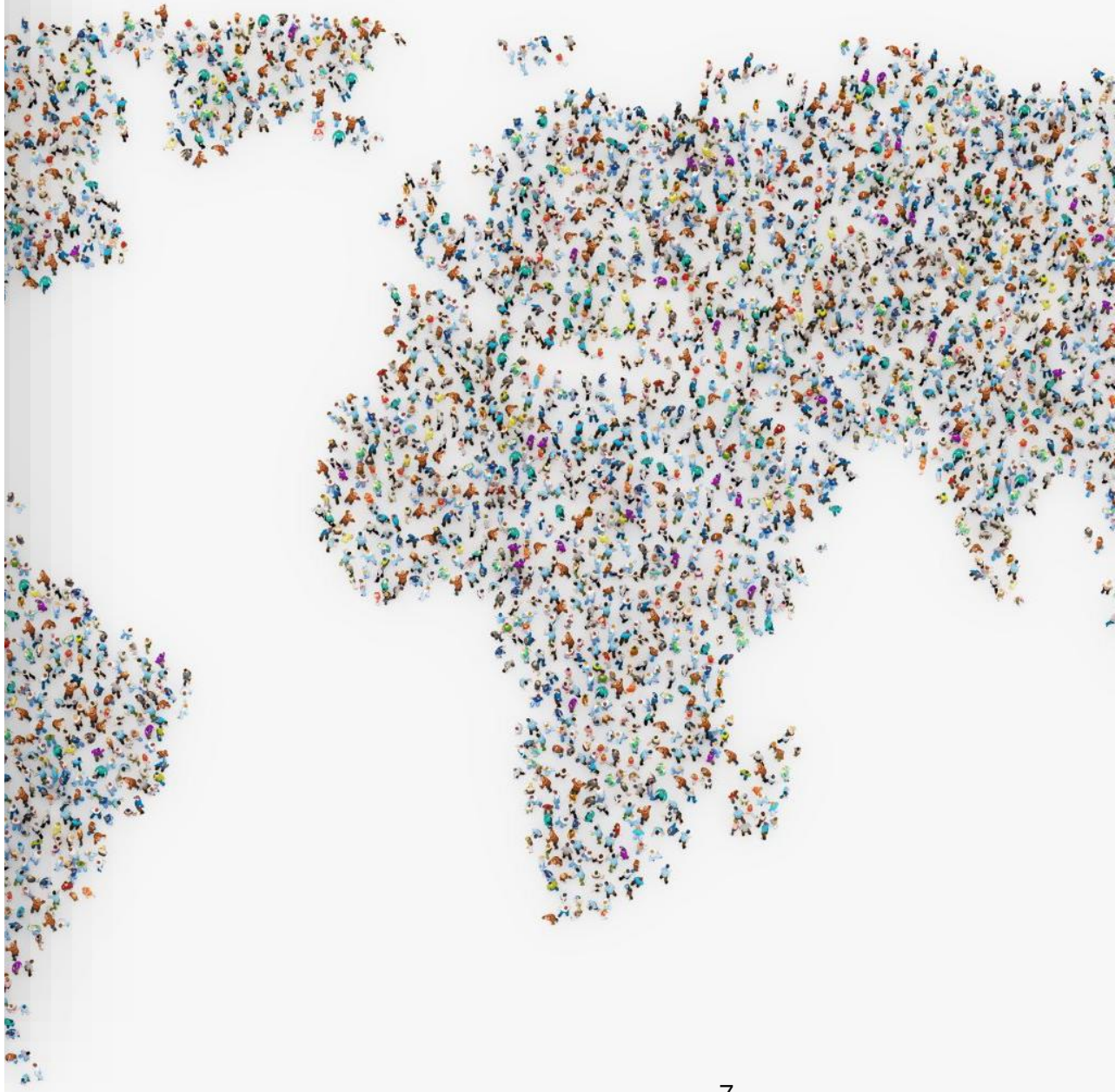
Acknowledgement provided within 5-7 working days

Screening/Recruitment activities can commence prior to acknowledgement

NOTE: IND and CMC dossier are not required

Other factors:

- Population Diversity
    - Caucasian
    - South Asian
    - East Asian (e.g. Chinese, Japanese, Koreans)
    - South East Asian
    - Latin American
- Established infrastructures to support clinical research ecosystem
- Seasonal advantage



Overview - Nucleus Network

Most Experience

First-in-human specialist & largest early phase clinical trials site in Australia

- **Melbourne (115 beds)**
- **Brisbane (65 beds**
- **Minneapolis (52 beds)**
- **Sydney (60 beds)**

20+

Years of experience

1500+

Early Phase/Clinical Pharmacology trials

- **FIH (SAD/MAD)**
- **Food Effect**
- **DDI / TQT/ BA (BE)**
- **Biosimilar**
- **Vaccine**
- **Ethnobridging**

Inspections

By FDA & EMA & previously ANVISA certified

50%

Of all the trials conducted annually are true first-in-human

Specialist Capabilities in Multiple Therapeutic Areas

High quality hospital and research facilities provides sponsors with unique access to recruit patients and perform specialized procedures for clinical pharmacology studies.

Known for delivering highly complex Phase I clinical studies in a range of therapeutic areas, our vast access to highly specialized services and procedural capabilities are unmatched globally.

We have well-established relationships with hospital and research facilities, and our co-location with health and medical precincts at each of our sites enables us to access a range of Key Opinion Leaders and ancillary services. This enhances our offering to our sponsors when designing and executing clinical trials and includes access to patients and complex specialized assessments.

Cardiology
- TTE
- Telemetry
- Holter monitoring

Dermatology
- Punch Biopsies
- Skin irritation assessment
- PASI scoring

Gastroenterology
- Fibro scan
- Sigmoidoscopy
- Liver ultrasound

Immunology
- Gluten challenge
- Nasal challenge
- Skin prick allergy test

Infectious Diseases
- Group A Streptococcus challenge model
- Malaria challenge model

Metabolism & Endocrinology
- Metabolic Calorimeter
- DEXA imaging
- Glucose clamping
- Glucose tolerance test
- Mixed meal tolerance test
- MRI PDFF

Neurology
- Lumbar puncture
- EEG
- Cogstate battery
- Pain & Thermostimulatory

Ophthalmology
- Tonometry
- Dark adaptometry
- BCVA-ETDRS
- FAF
- Bimicroscopy
- Fundus Exam
- OCT & ERG

Radiology
- Onsite CT imaging
- Onsite PET imaging
- Onsite X-Ray
- Onsite Ultrasound
- Onsite MRI

Respiratory
- Bronchoalveolar lavage (BAL)
- Spirometry (FEV1, FVC)
- NO2 assay

Women's Health
- Colposcopy
- PAP Smears

Types of vaccine studies conducted in Australia

- COVID19 vaccines
- Influenza vaccines
- RSV vaccines
- Malaria vaccines
- Dengue vaccines
- Cholera vaccines
- Ross River Virus vaccines
- H1N1 vaccines
- Ebola vaccines
- HIV vaccines

Experience in all major vaccine platforms including mRNA, GMO and live attenuated. This extends to novel delivery methods including intranasal and intradermal

Testimonials

"The urgent global race to develop a vaccine against the COVID-19 pandemic drove our rapid identification and selection of an optimal, highly immunogenic vaccine candidate," said Stanley C. Erck, President and CEO of Novavax. "We are pleased that Nucleus, our long-time partner, was able to accommodate our accelerated timeline."

NOVAVAX

"We are thrilled that an organization with the reputation and capabilities of 360biolabs agreed to work with us in this critical clinical trial", said Gregory Glenn, Novavax President of Research and Development. "We are confident 360biolabs will provide timely and appropriate data results".

NOVAVAX

"There are clear advantages in doing studies for respiratory virus vaccines and therapeutics in AUS. It allows us to flip between hemispheres based on respiratory virus season. There are also very attractive tax incentives, and highly educated English speaking workforce in AUS that isn't necessarily the case elsewhere. I do believe that doing our studies in AUS has allowed us to expedite our influenza virus program"

-Anonymous

"We saved 6 months, recruitment exceeded expectation, we had more cases than expected, and it cost 40% less than conducting the same study in Europe"

vaccitech

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PHASE ONE • TWO COUNTRIES • THREE SITES

Melbourne • Brisbane • Minneapolis