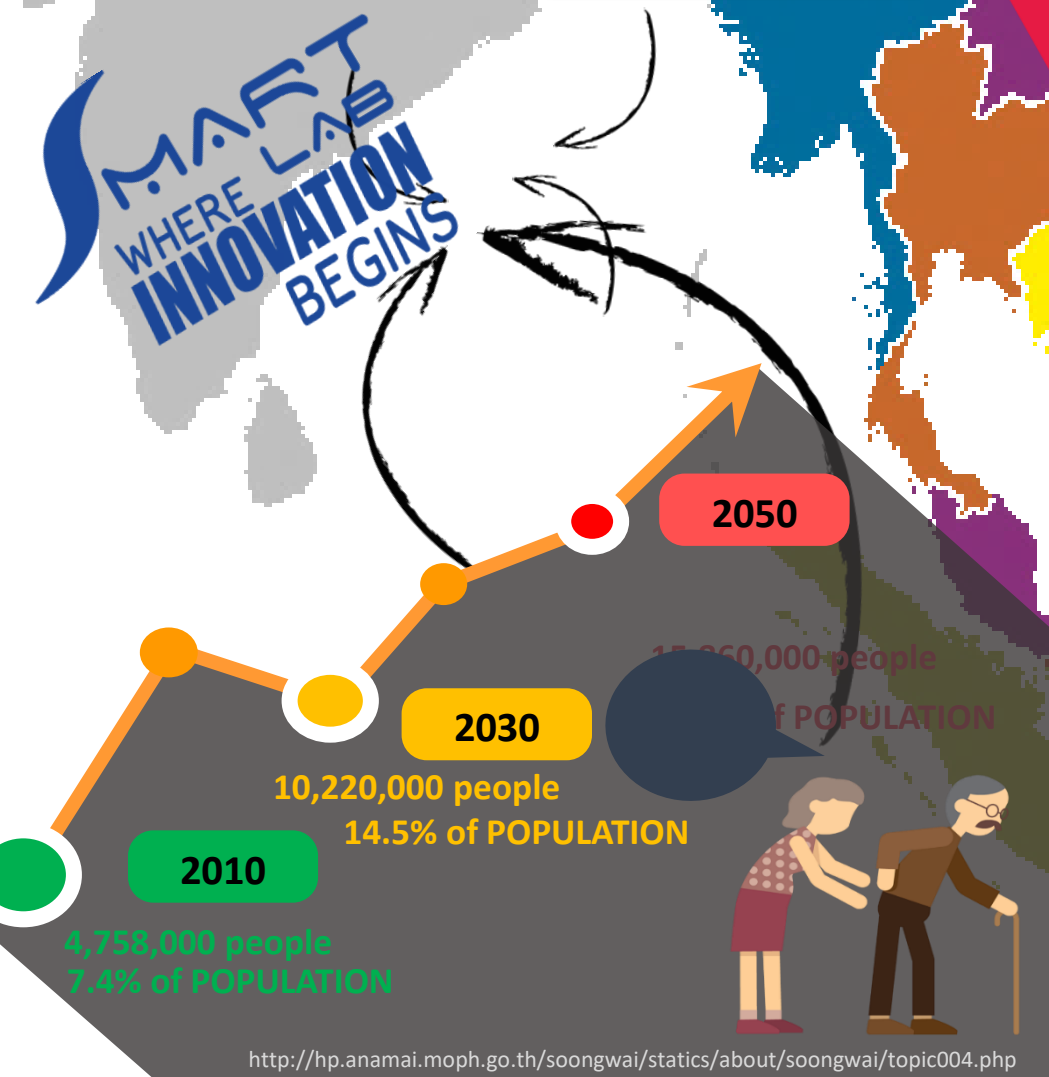




**MAFT LAB**  
WHERE INNOVATION BEGINS



# Smart Orthopedic Fixation

**Assoc. Prof. ANAK KHANTACHAWANA, PhD**

**E-mail: [anak.kha@kmutt.ac.th](mailto:anak.kha@kmutt.ac.th)**

**NSTDA Investor's Day 2018 @BITEC**



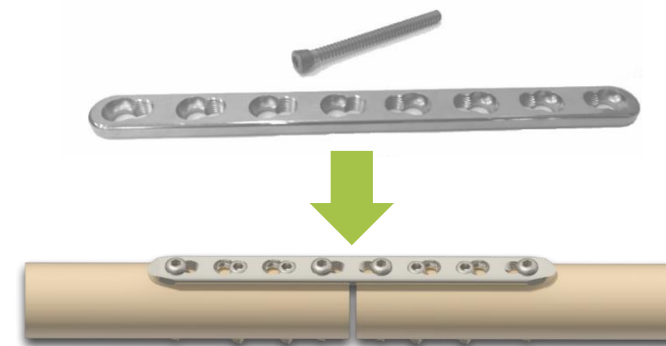
# Did you know?



every 3 second  
someone gets broken bone



## TREATMENT



Orthopedics  
Fixation Plate & Screw

## PROBLEMS



Insufficient Strength  
High profile

Wear &  
Corrosion



# Innovation and Technology I

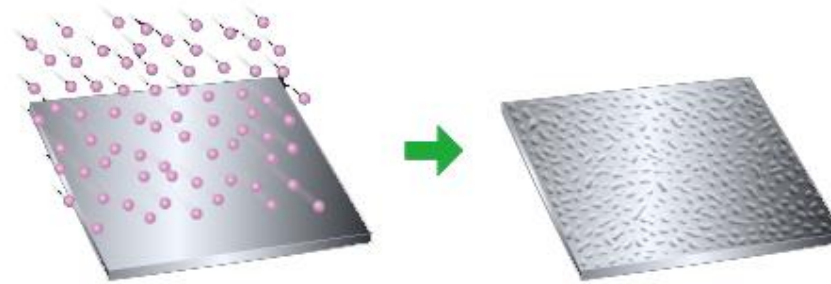


## Fine Shot Peening (FSP)

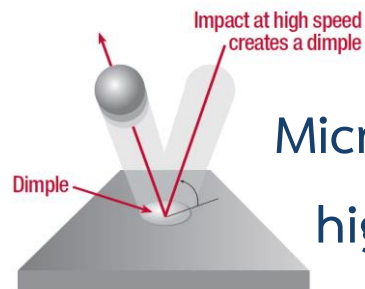
Fine particle: 20-200  $\mu\text{m}$

Impact speed: 360+ km/h

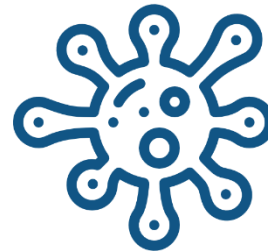
Material: Metal, Ceramic, etc.



Residual Compressive Stress



Micro-dimples resulting in  
higher cell growth rate



## KEY FEATURES

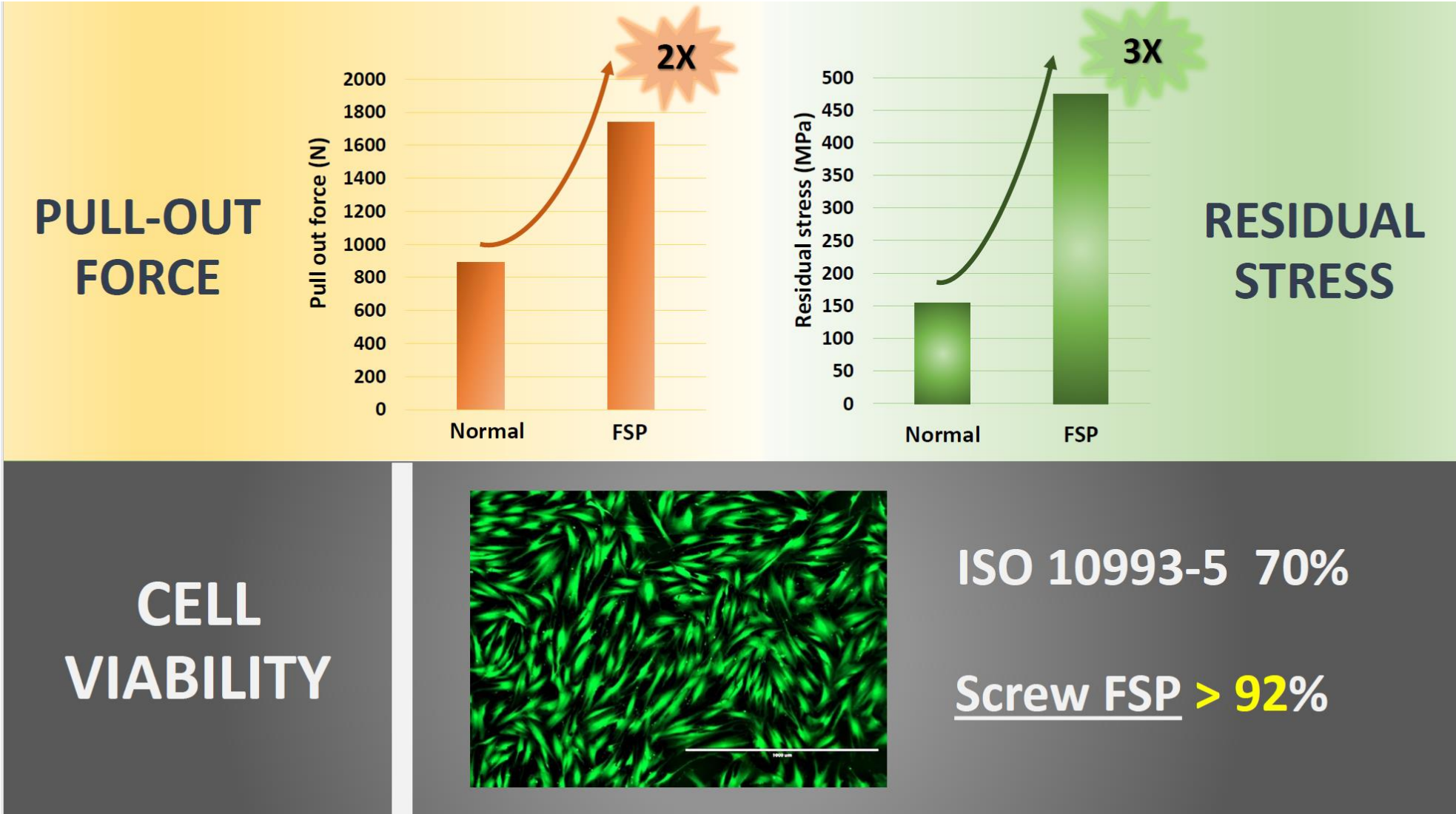
Decrease Friction

Improve Fatigue Strength

Improve Pull-out Strength

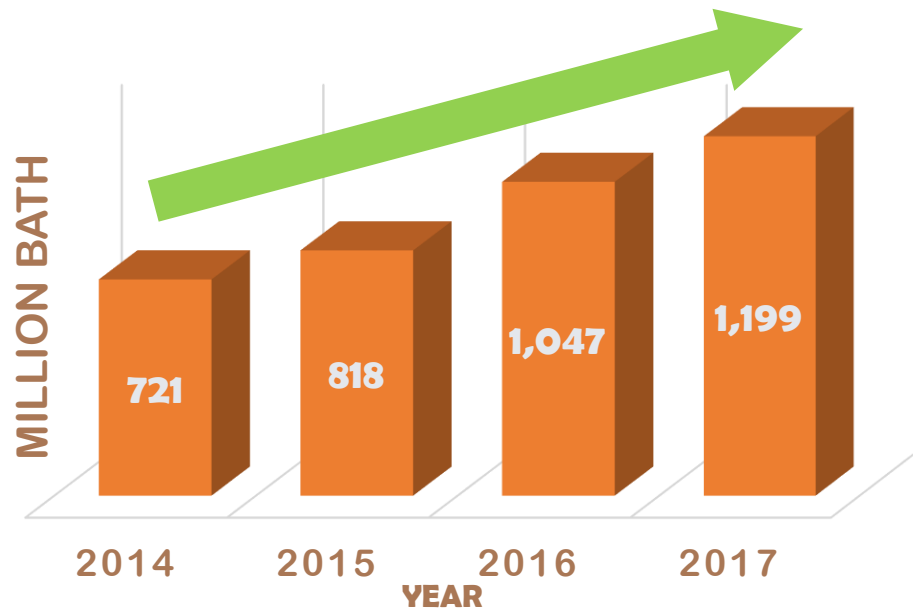
Thinner & Lighter & Better

# Innovation and Technology II



# Market Size

**Market value in Thailand has been increase every year**



**Import 90%**



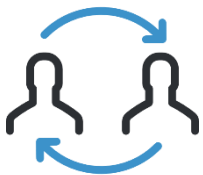
**More than 2k pieces  
needed for  
whole country**



**Worth 1.2B  
Implantation devices  
more than 300 types**



# Business model and/or Marketing plan



## Education

Medical doctor training program/  
Doctoral course support



## Government support

- Comptroller General's department
- Innovation registration for government sectors



## Technology Transfer

Talent mobility program,  
Cooperation program  
(Expect:50-60% cut cost from imported products)

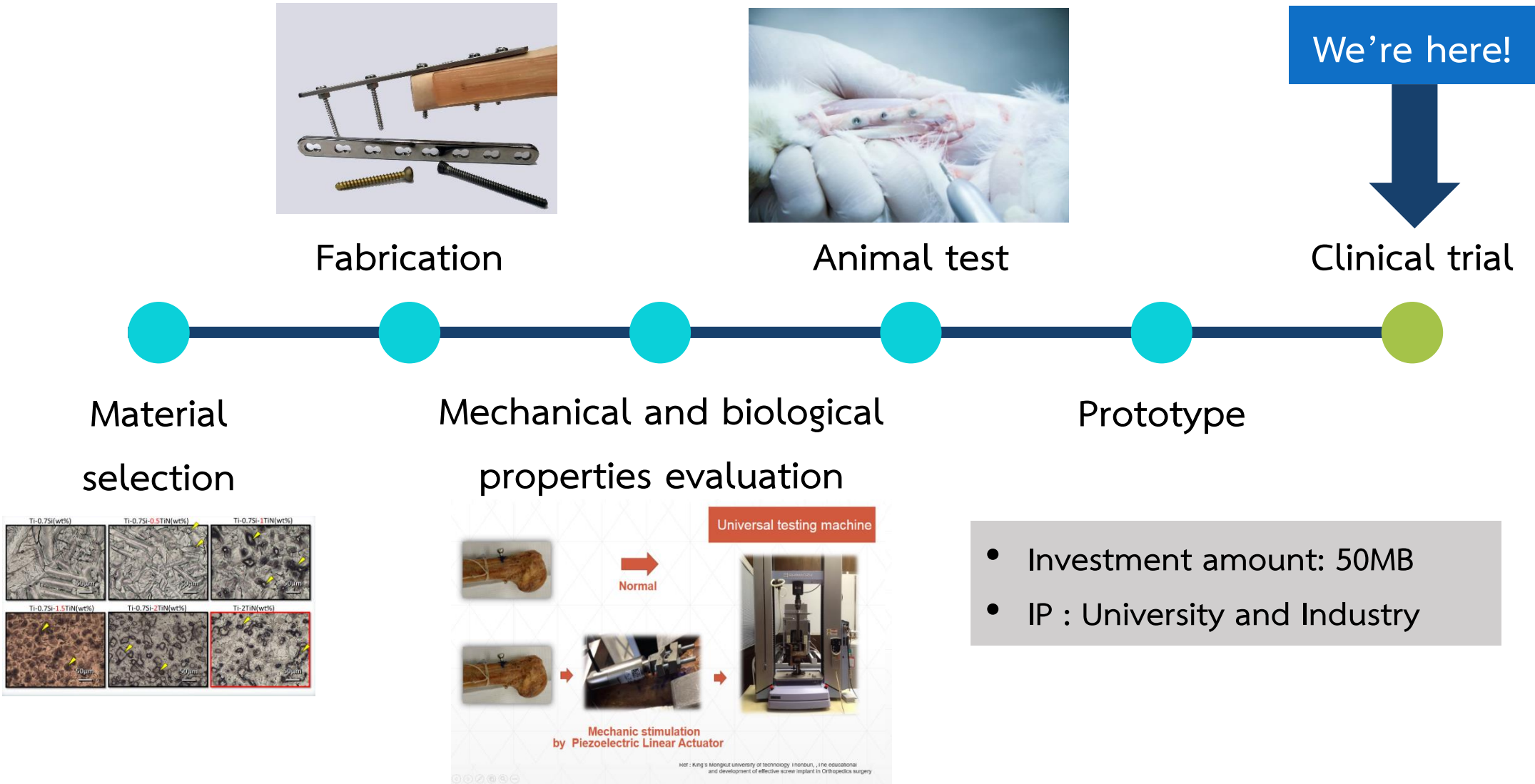


## Export

ASEAN market



สำนักงานคณะกรรมการอาหารและยา  
Food and Drug Administration



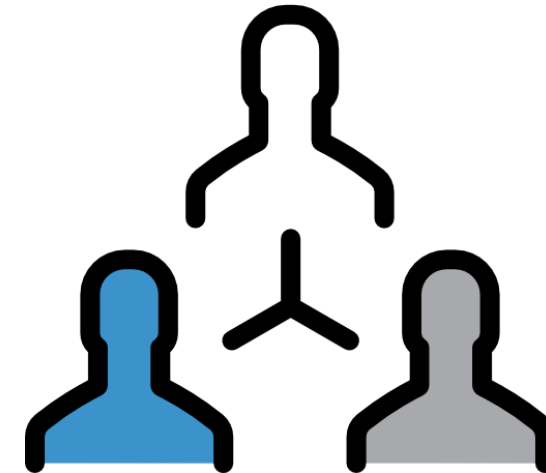
- Investment amount: 50MB
- IP : University and Industry



Founded on 2005  
focusing on  
Research and innovation



Expertise  
Mechanical engineering  
Smart Material Technology  
Biological engineering



Cross-functional partners  
Engineer & Technologist  
Metallurgist & Biologist  
Doctor & Hospital  
Etc.



# Hall of Fame





**MAET  
LAB**  
WHERE  
INNOVATION  
BEGINS

## Contact

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