



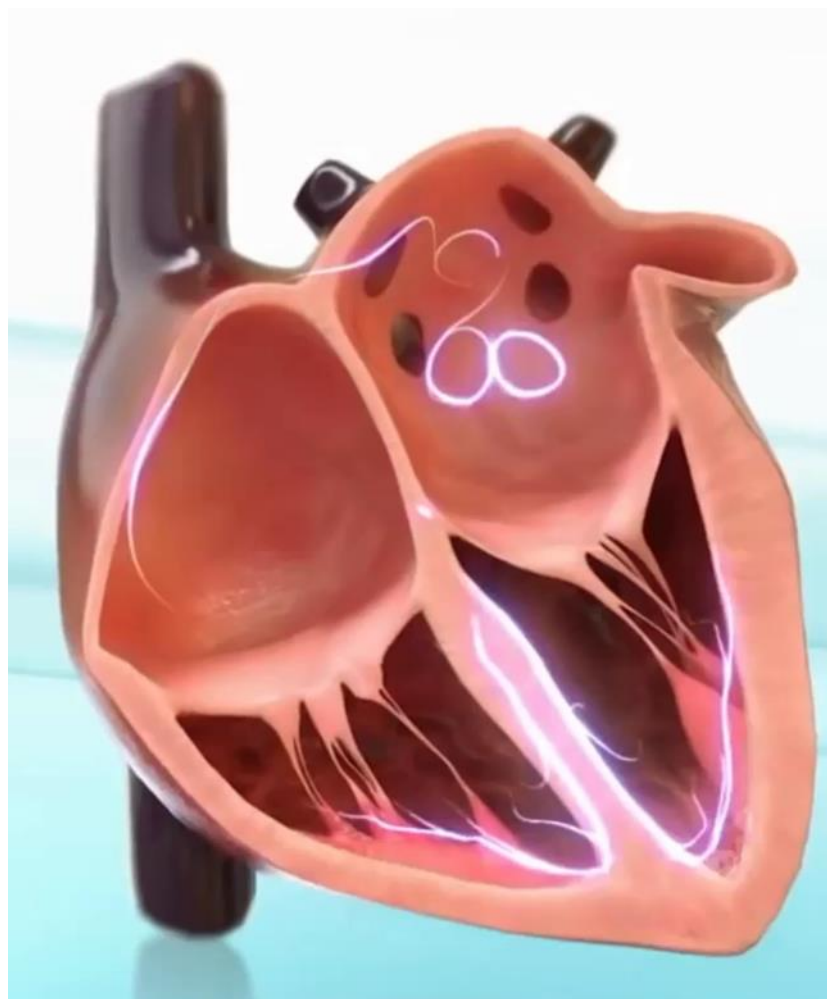
# Pathofysiologie Atriumfibrilleren

Lisette van der Does

PhD-student Cardiologie

Translationele Elektrofysiologie, dr. N de Groot



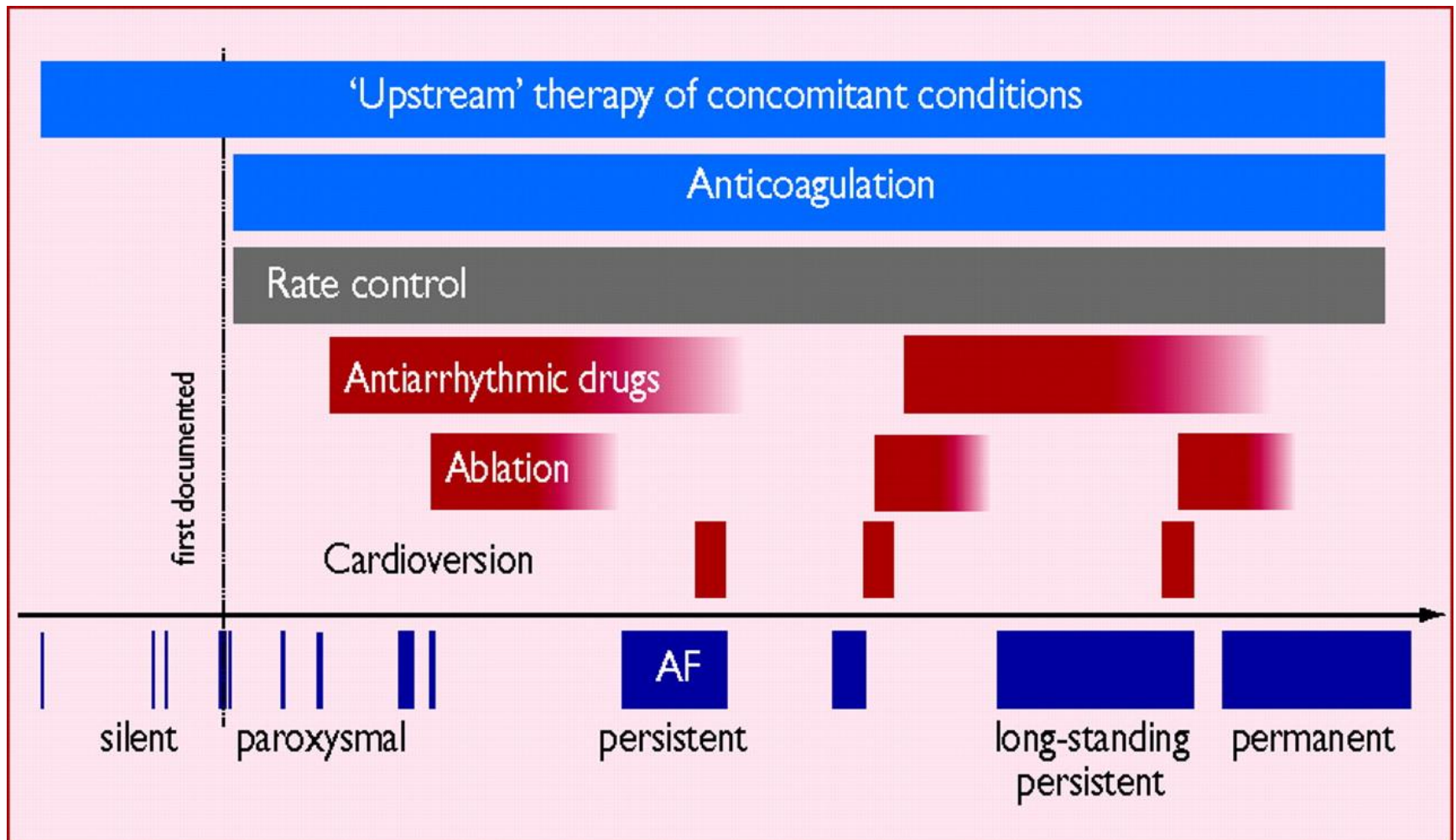


# Succes van behandelingen voor AF

	<u>1-jaar succes</u>
• Medicatie	25-60%
• Cardioversie	25-40%
• Operatie (MAZE)	75-85%
• Ablatie	
– Pulmonaal Vene Isolatie (PVI)	66-85%
– Lijnen	
– Ganglion Plexi (centraal zenuwstelsel)	
– CFAE	
– Rotors	

**Succes is afhankelijk van type AF!**

# Verloop AF



# van Paroxysmaal naar Persistent

**Paroxysmaal**



**Persistent**

**Trigger**



*Koorts*

*Alcohol*

*Drugs*

*Koffie*

*Inspanning*

*Stress*

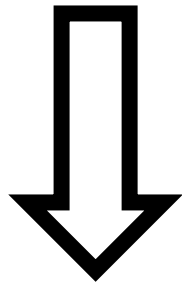
**Substraat**



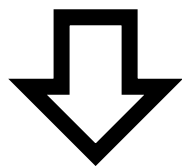
**Extra Atriale Slagen**

# Triggers

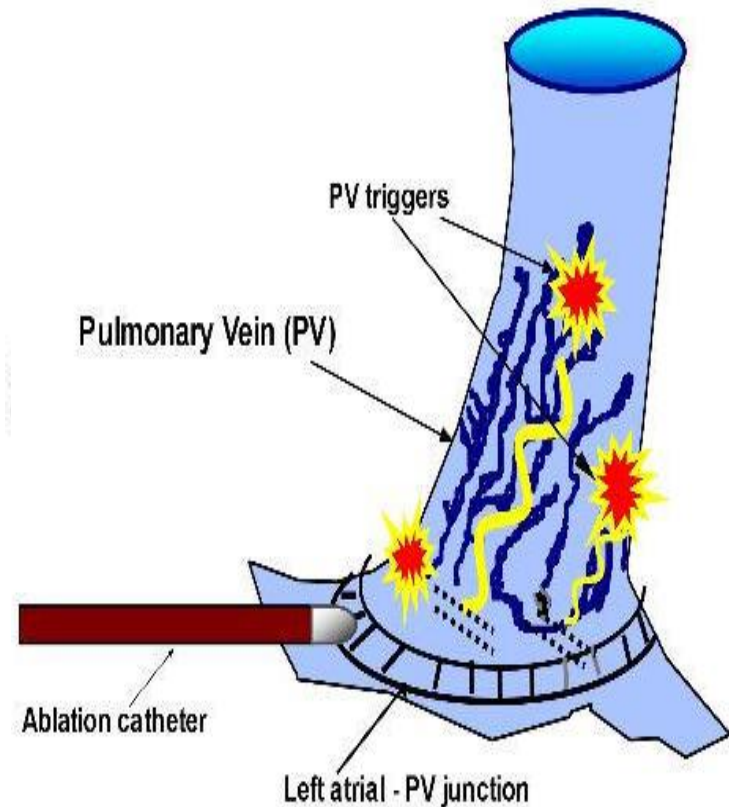
Extra atriale slagen



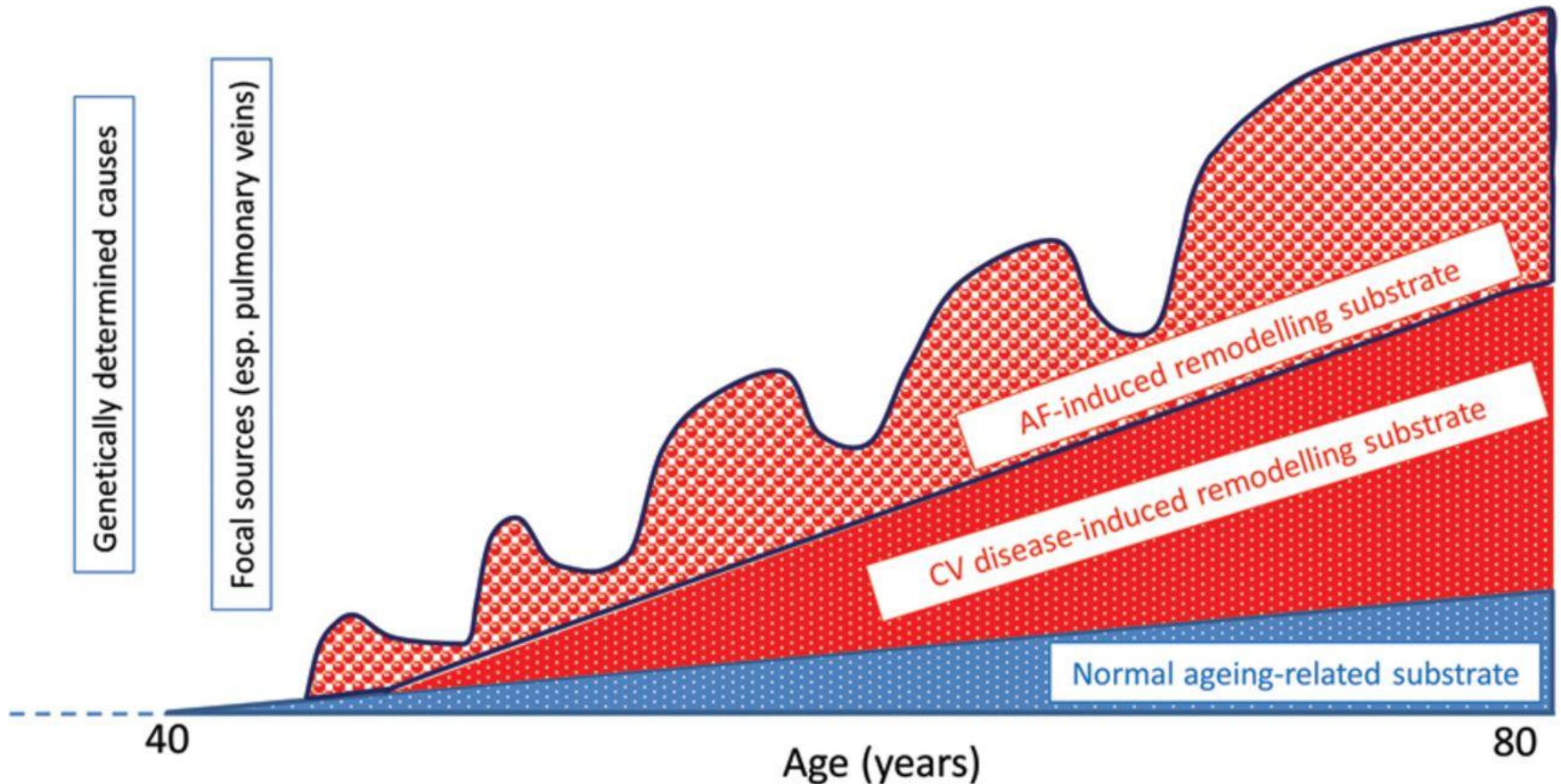
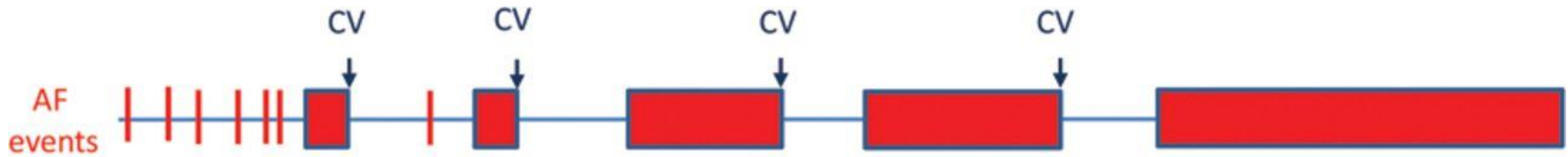
Pulmonaal Venen



**Pulmonaal Venen Isolatie  
(PVI)**



# Substraat

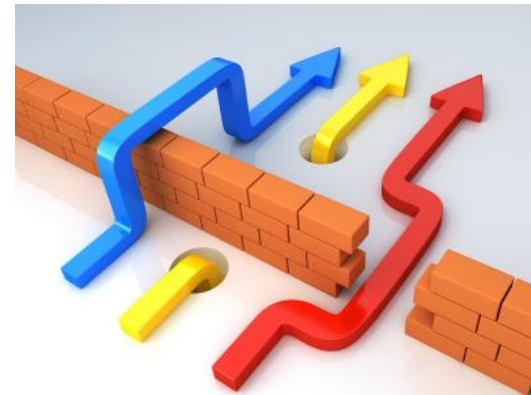


# Wat is een substraat?

Substraat = veranderingen in elektrische geleiding/ werking van hartcellen



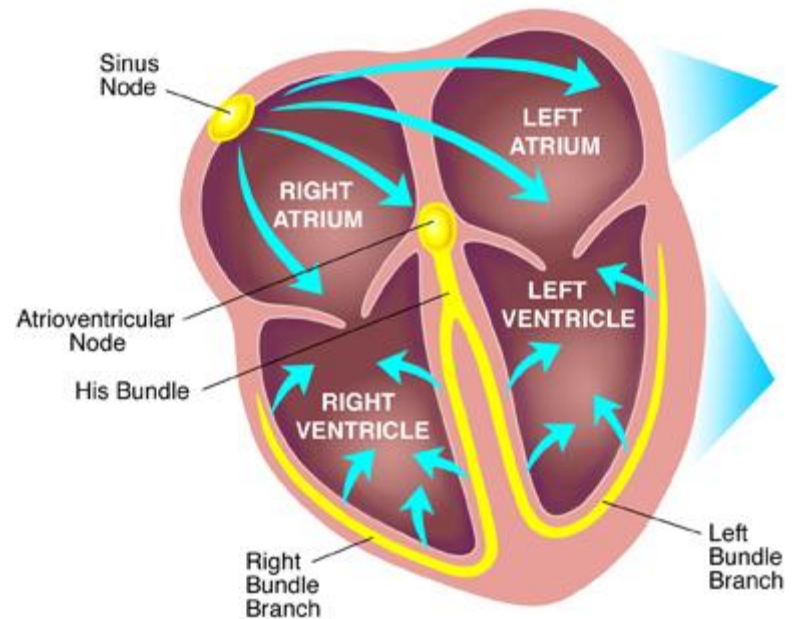
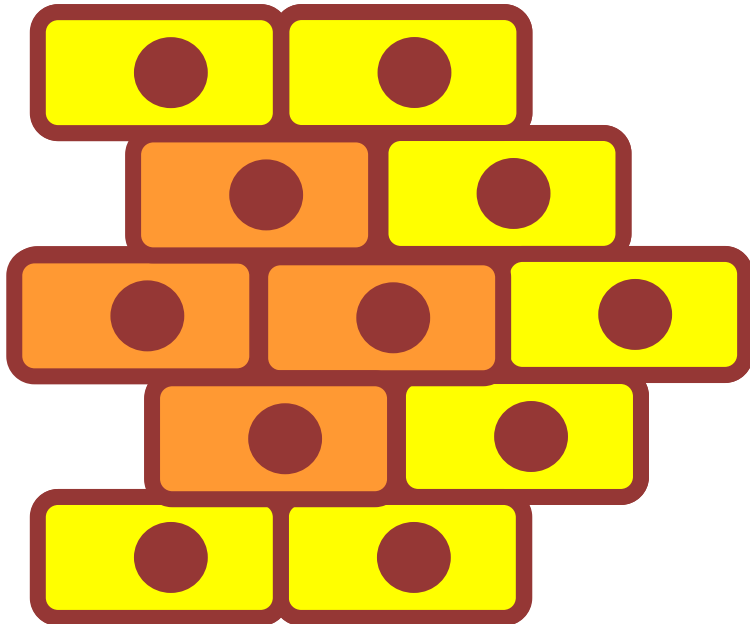
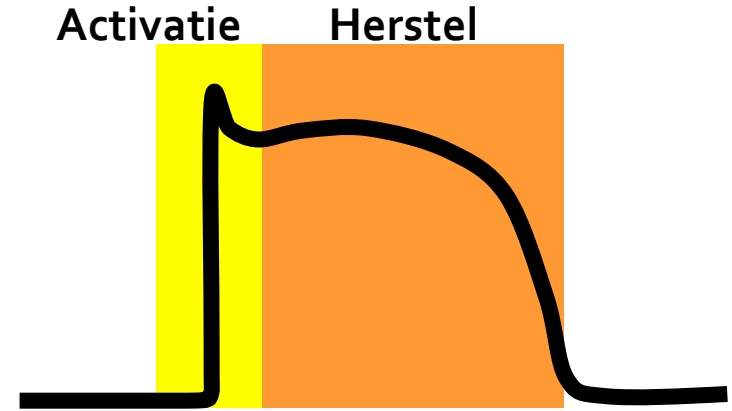
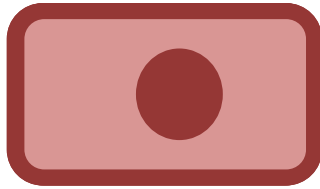
Dysfunctie hartcellen



Barrières in de geleiding  
tussen hartcellen

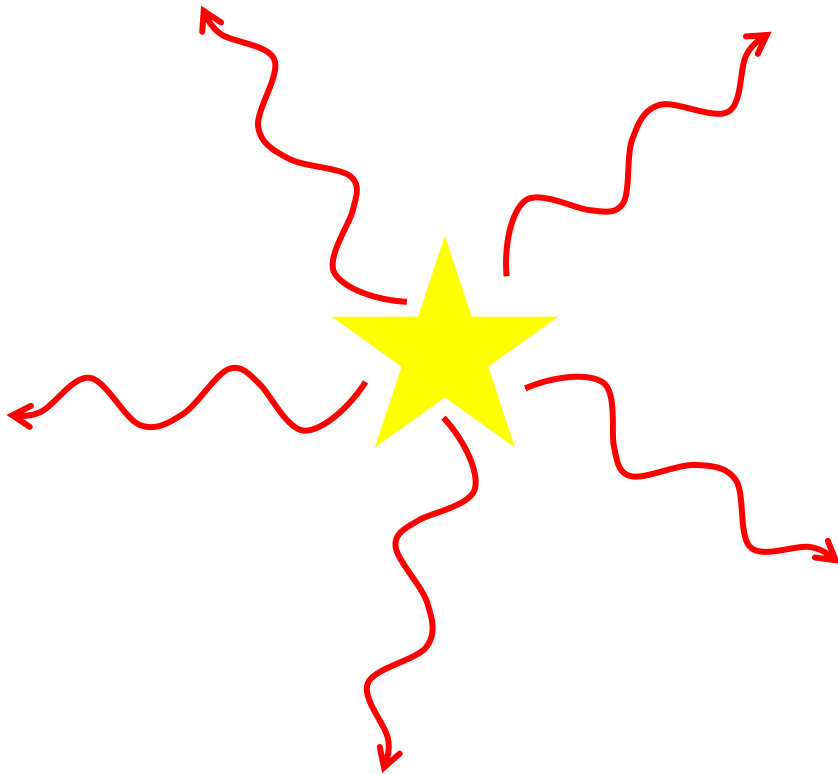


# Hart Activatie

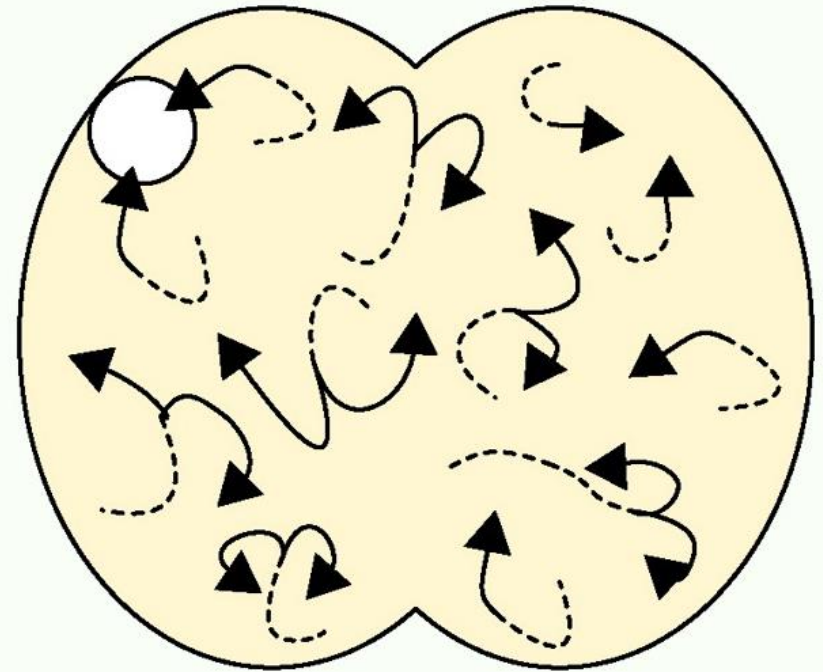


# Persistent AF Mechanismen

**Snel Focus  
+  
Abnormale Geleiding**

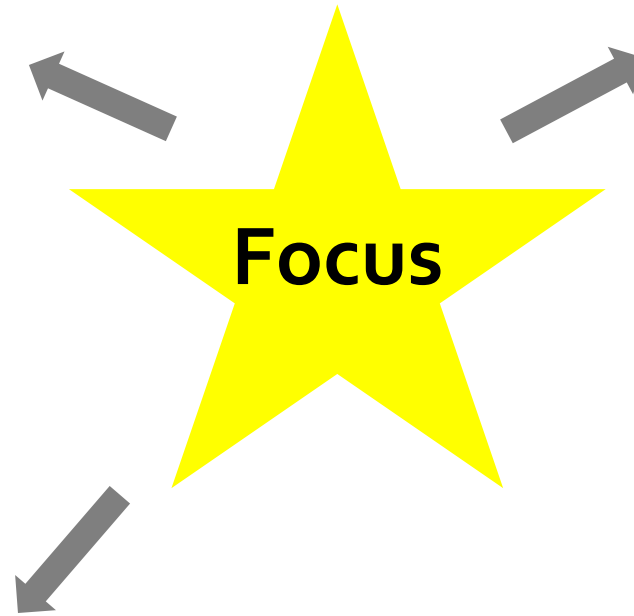
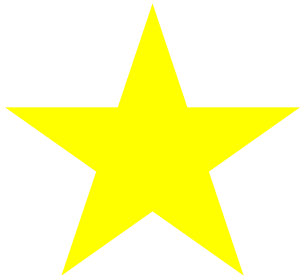


**Meerdere Golven  
+  
Reentry**

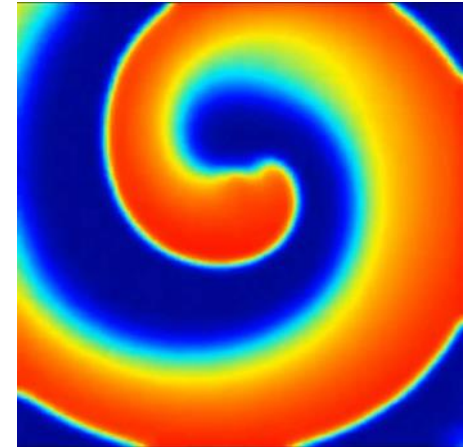


# Snel Focus

Spontane  
Activatie



Rotor



Rotor Ablatie

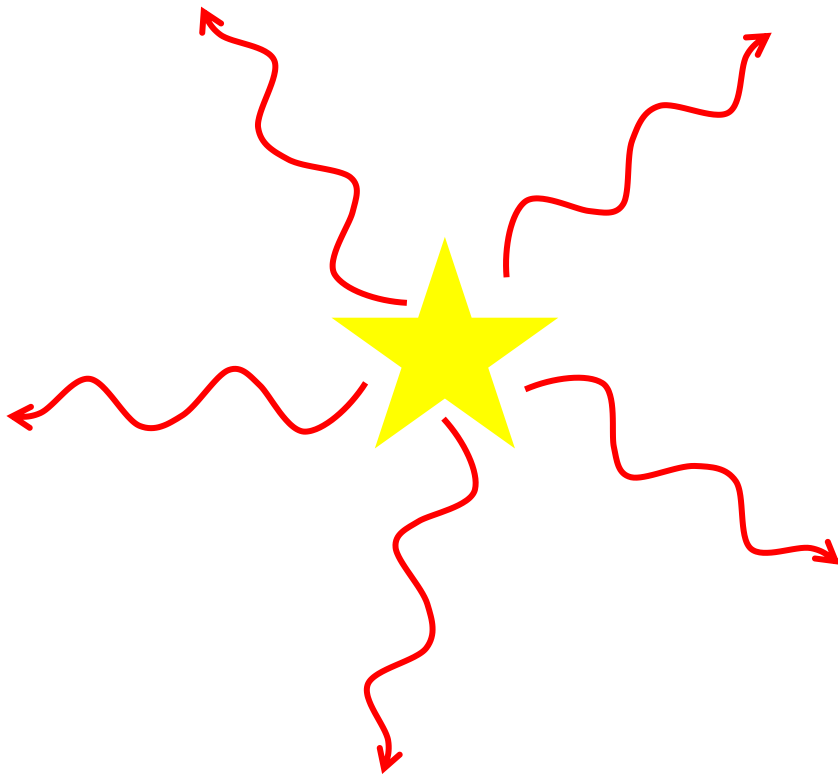
Reentry



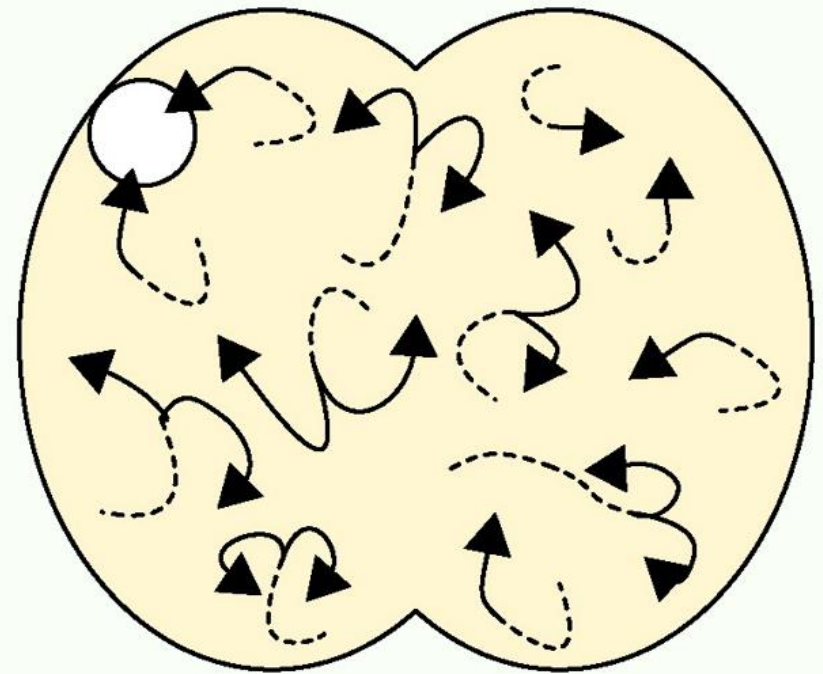
Niet alle omliggende hartcellen  
kunnen deze hoge snelheid volgen →  
chaotische geleiding (AF)

# Persistent AF Mechanismen

**Snel Focus  
+  
Abnormale Geleiding**

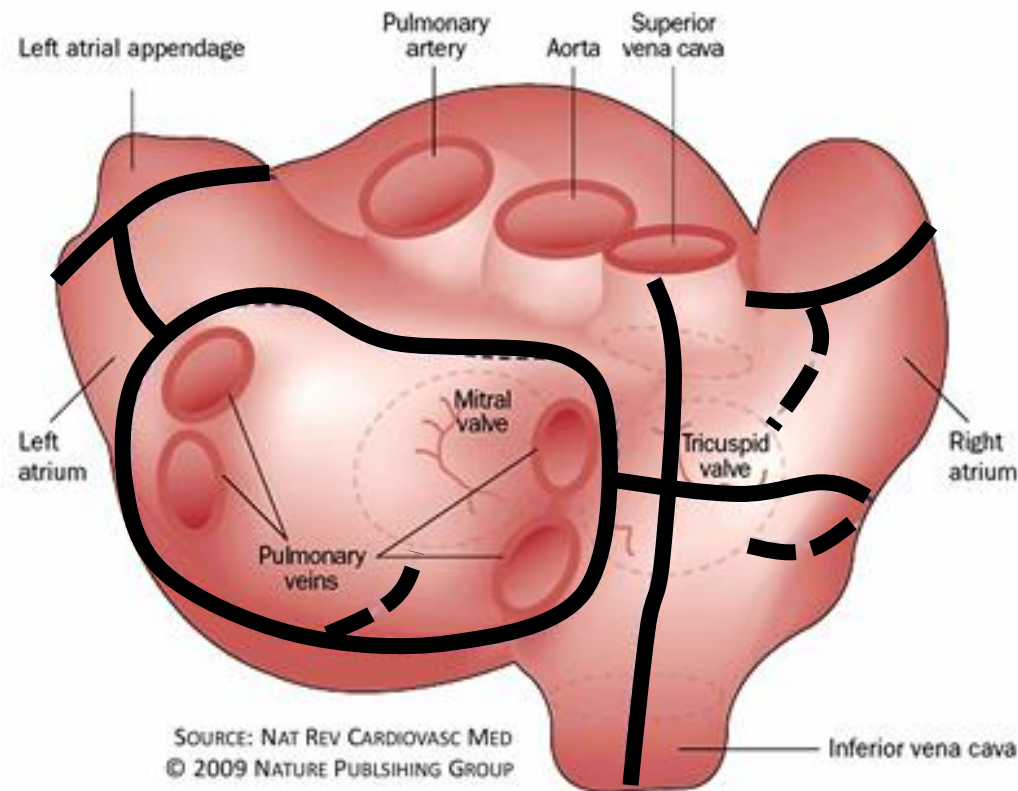


**Meerdere Golven  
+  
Reentry**



# Meerdere golven

## MAZE operatie

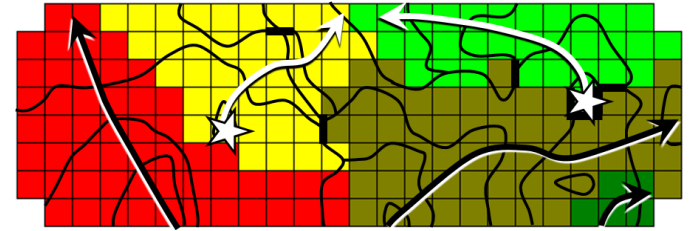


**Katheterisatie: Lijnen Ablatie**

# Erasmus MC Onderzoek AF

Orde scheppen in chaos

Activatiepatronen en geleidingsstoornissen tijdens AF in kaart brengen

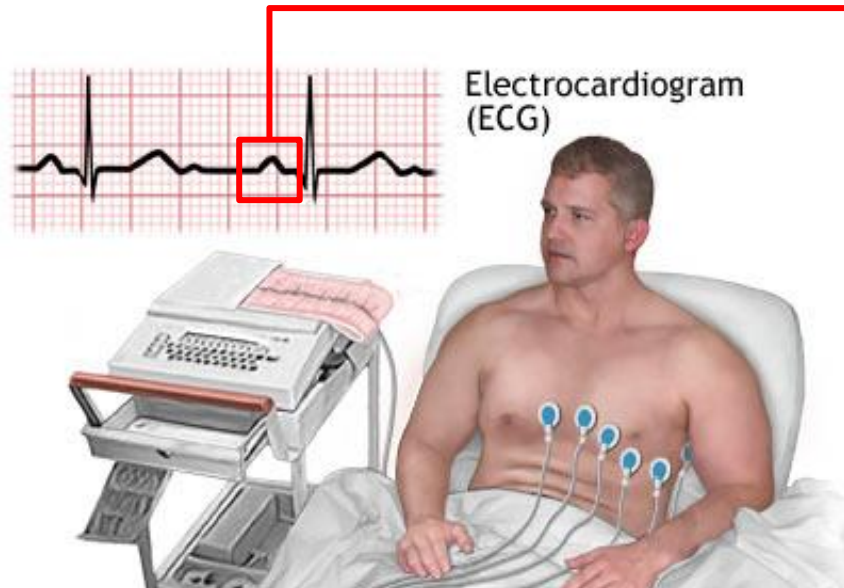


Patiënten met paroxysmaal/  
persistent AF en zonder AF

Epicardiale mapping tijdens  
openhartoperaties

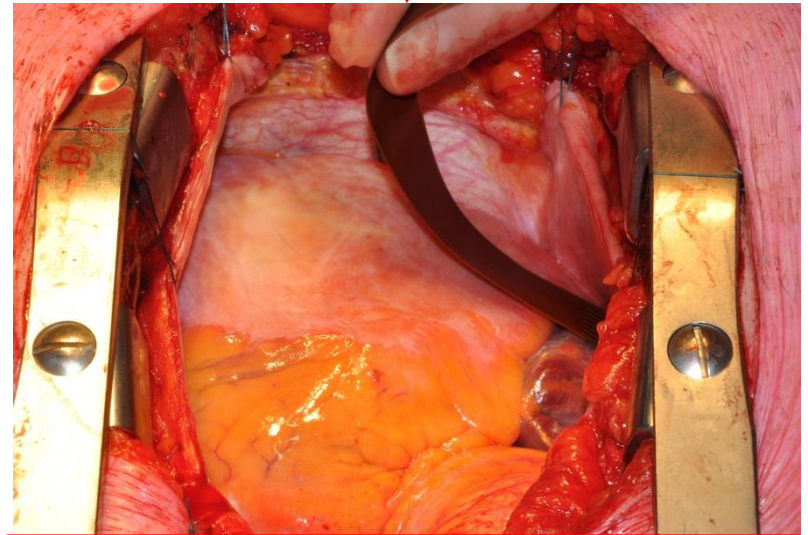
# Epicardiale Mapping

Oppervlakte ECG



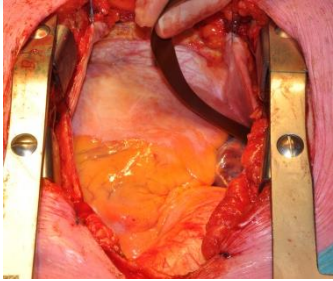
12 afleidingen  
Activatie hele hart

Epicardiale Mapping

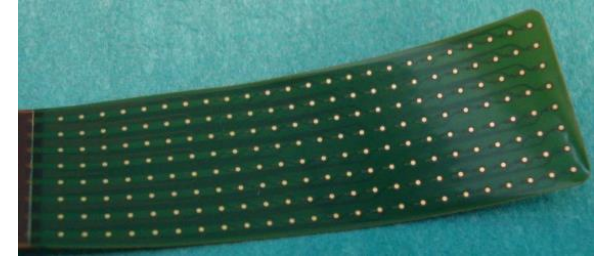


Elektrische Activatie  
Atrium Oppervlakte

# Epicardiale Mapping

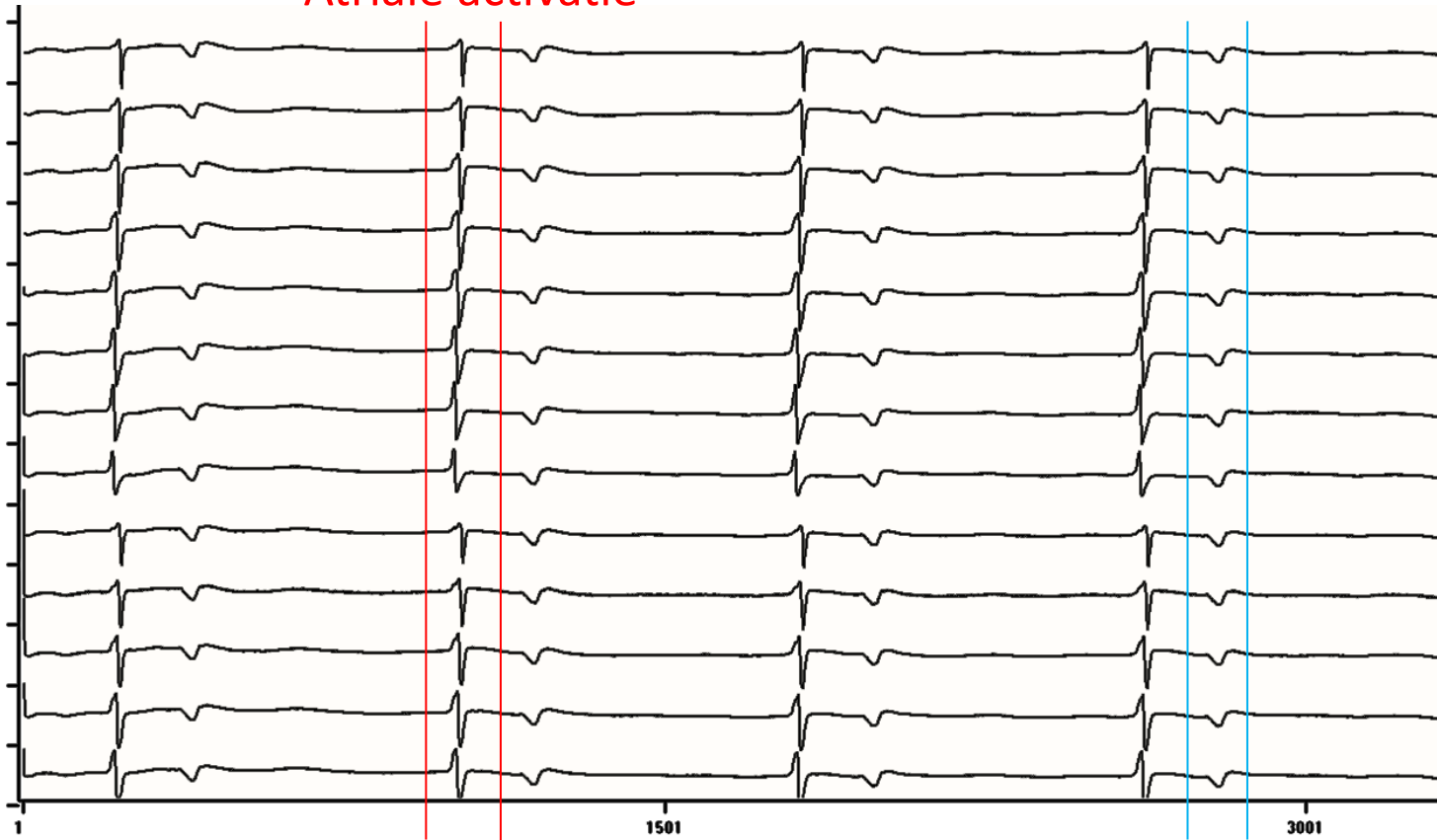


10 x 192 electrodes  
Activatie atrium



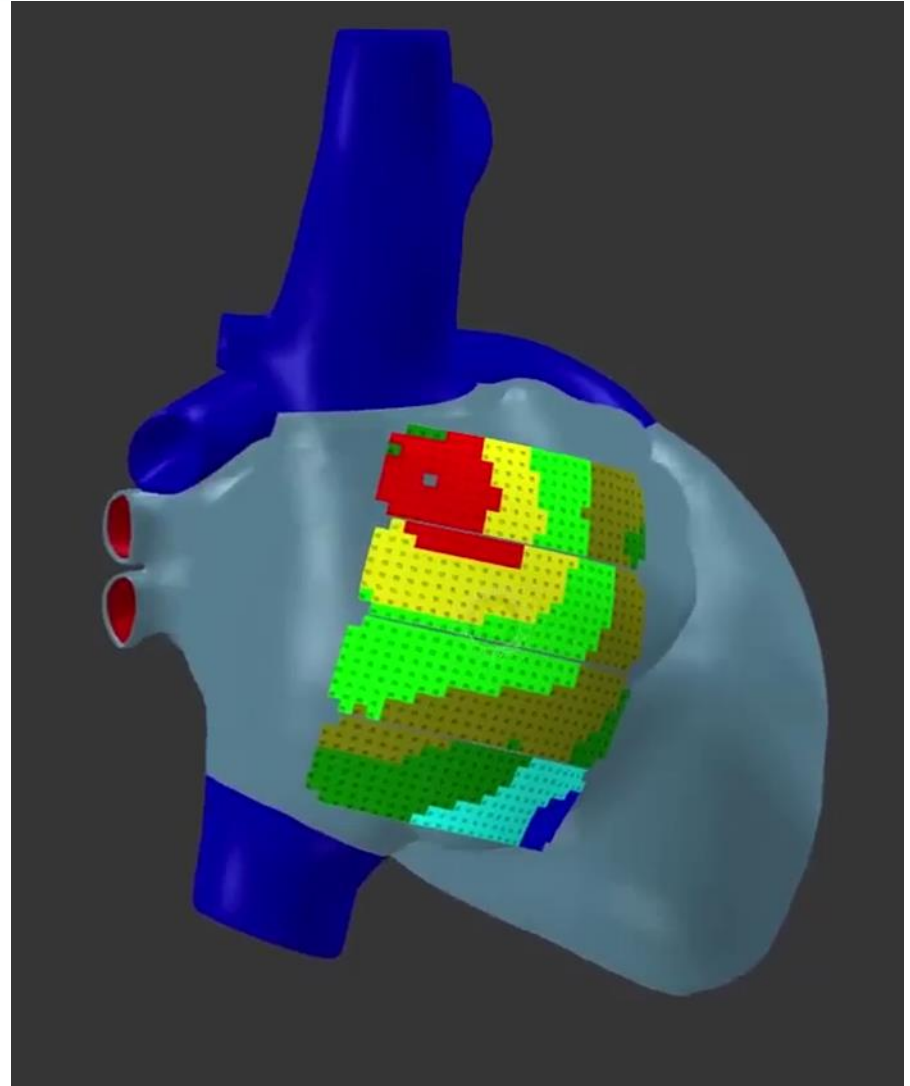
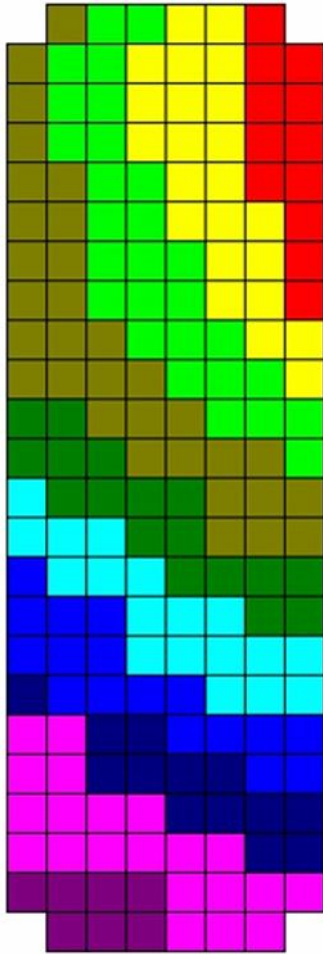
Atriale activatie

Ventriculaire activatie

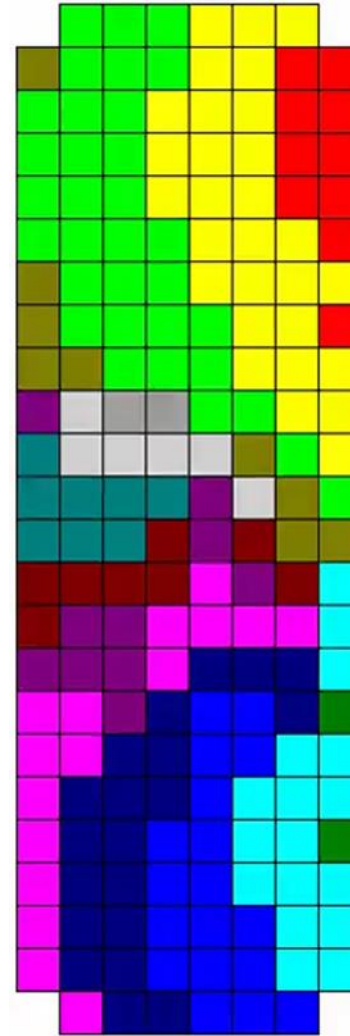
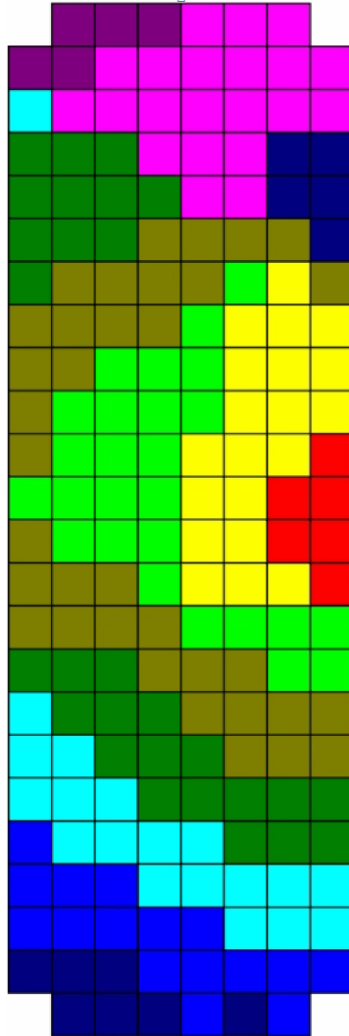




# Epicardiale Mapping

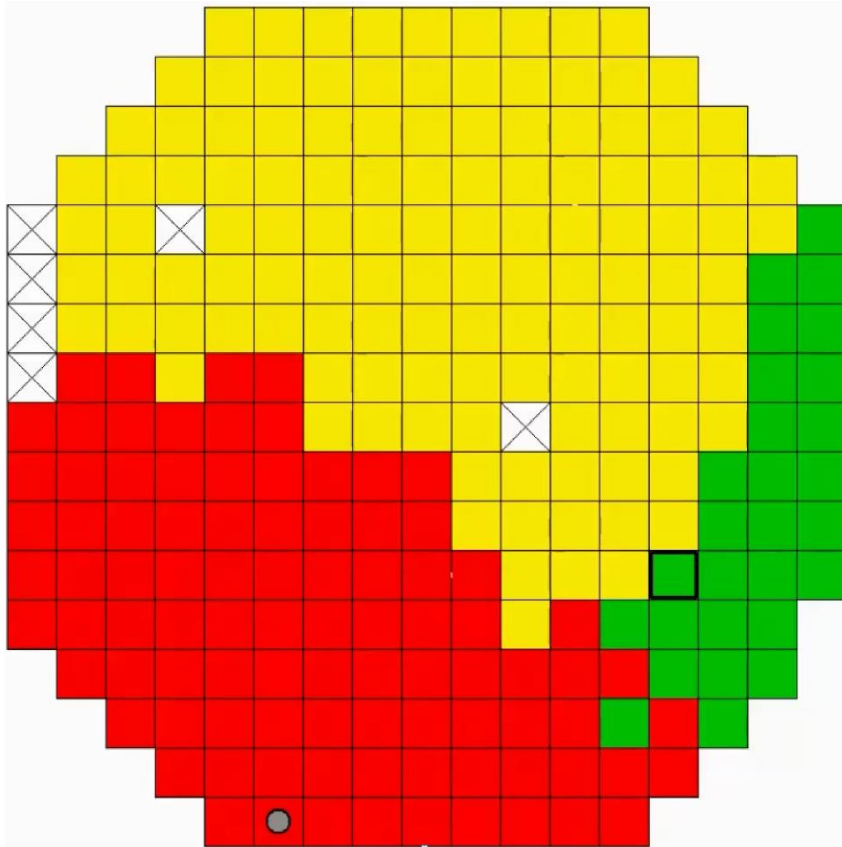


# Stoornissen in Geleiding

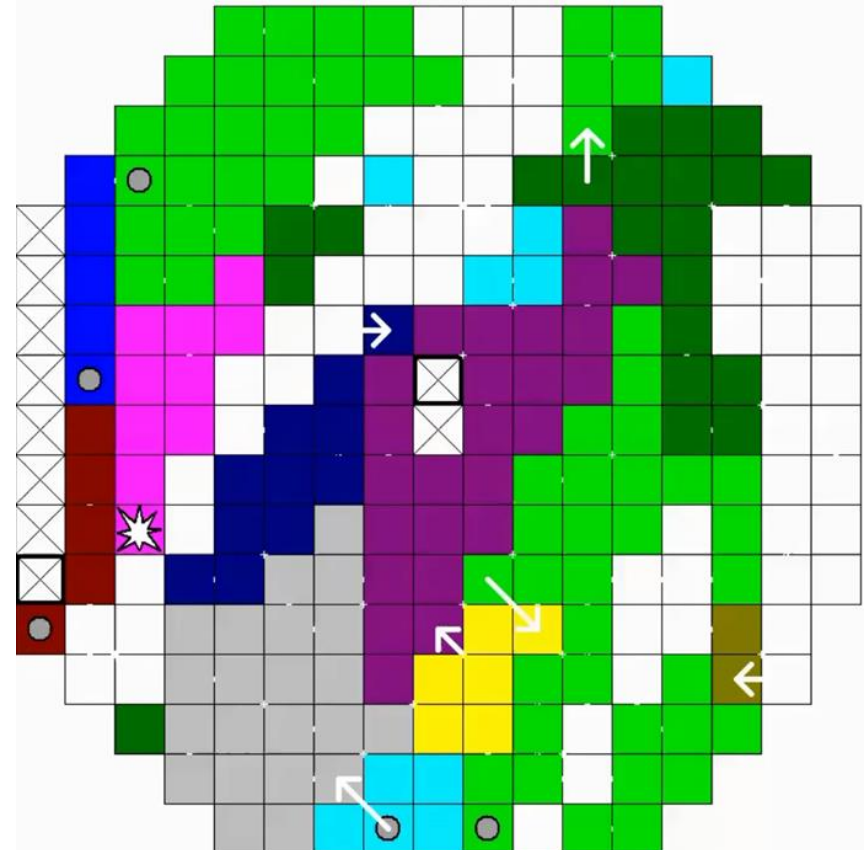


# Activatiepatronen in AF

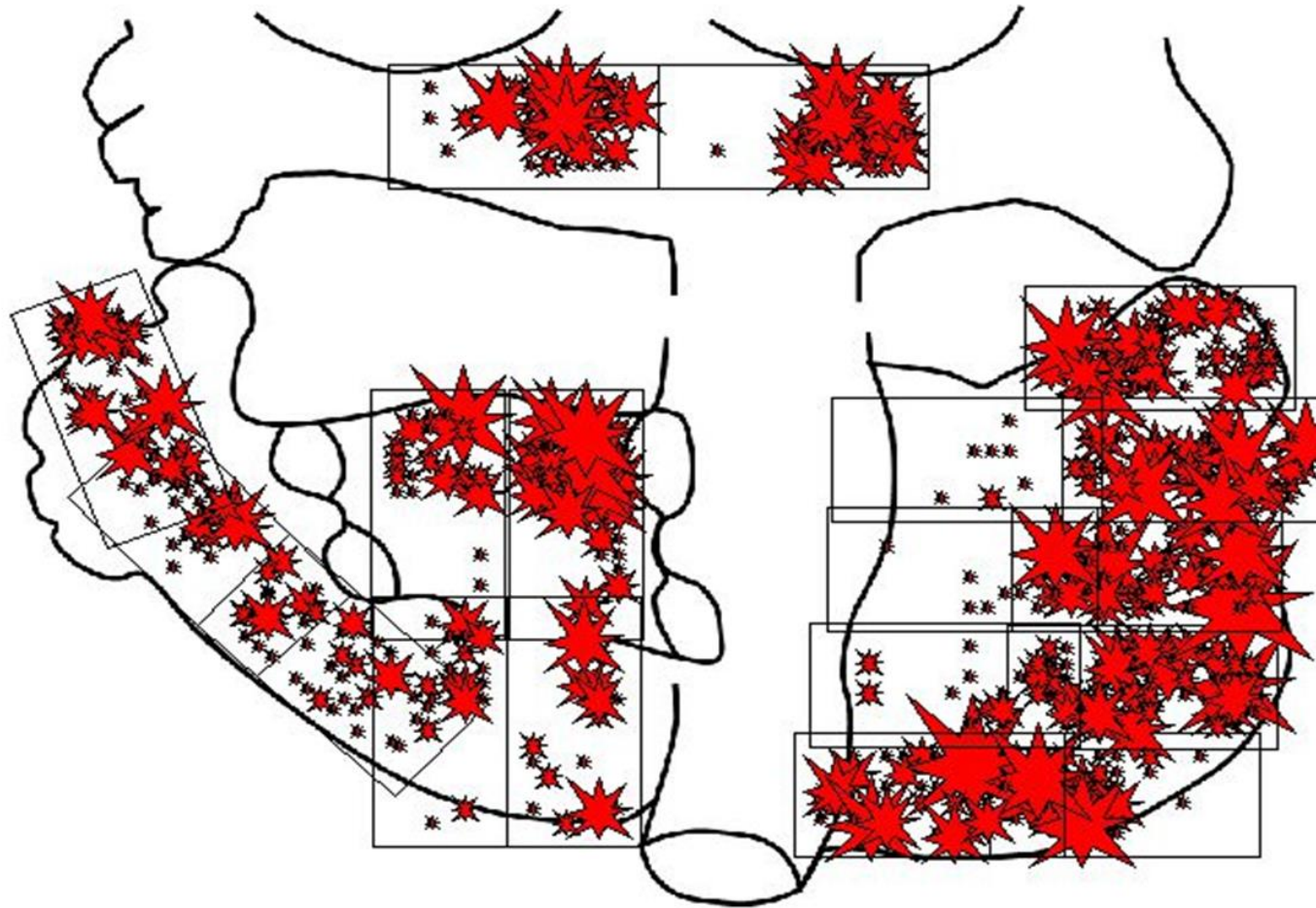
Geïnduceerd AF



Persistent AF



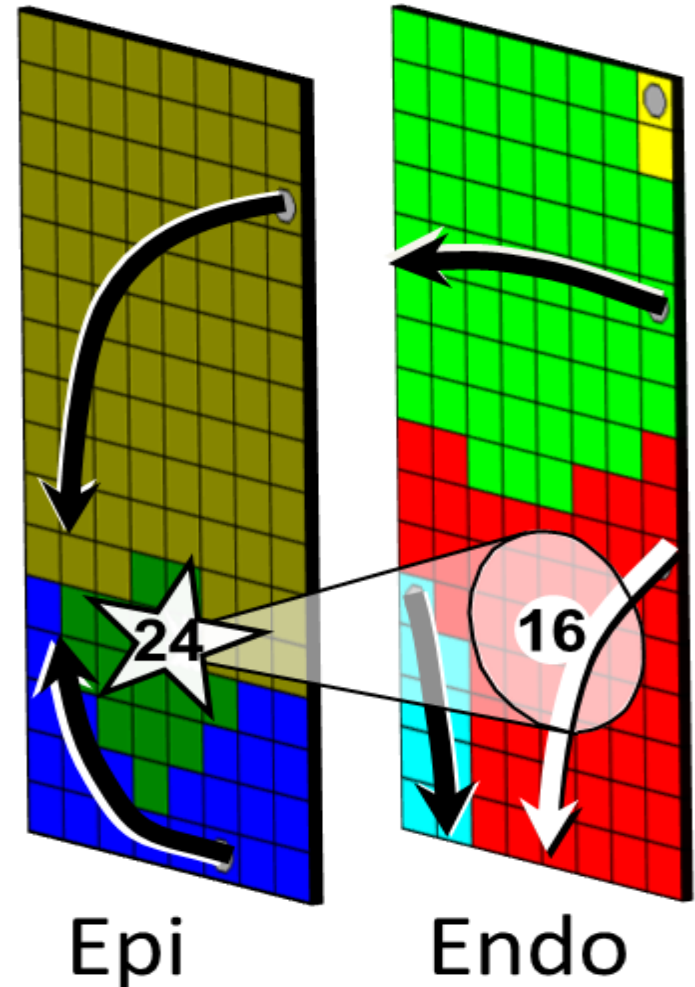
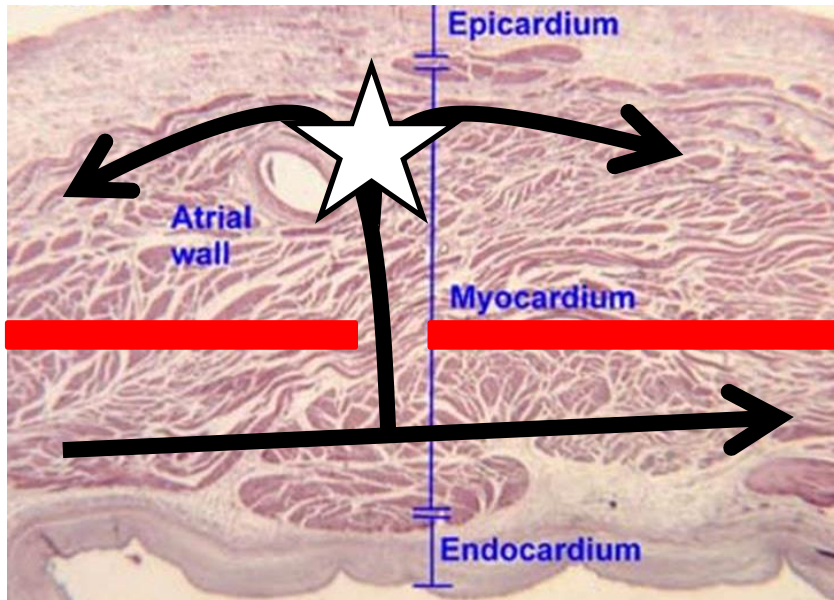
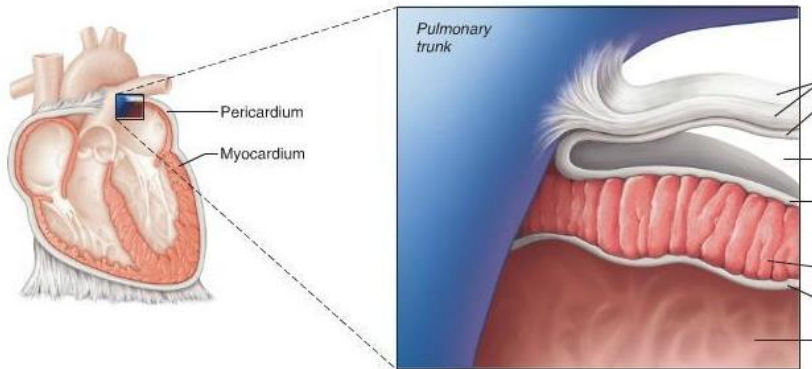
# Focale Golven



**8550 Focale Golven per minuut!**

# Asynchrone Activatie Hartlagen

65% van focale golven kan verklaard worden door geleiding vanaf andere zijde



# Paroxysmaal AF



Triggers



Extra slagen vanuit  
Pulmonaal Venen



Isolatie (PVI)

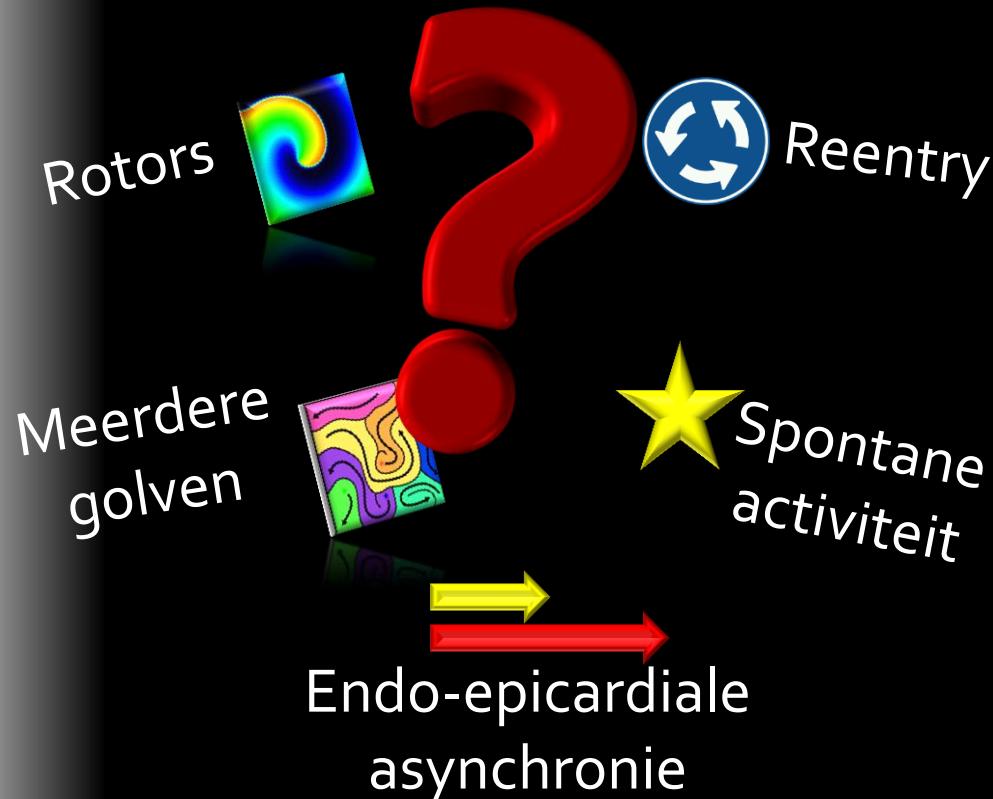


# Persistent AF

Substraat

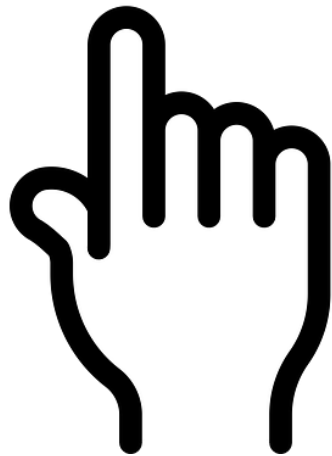
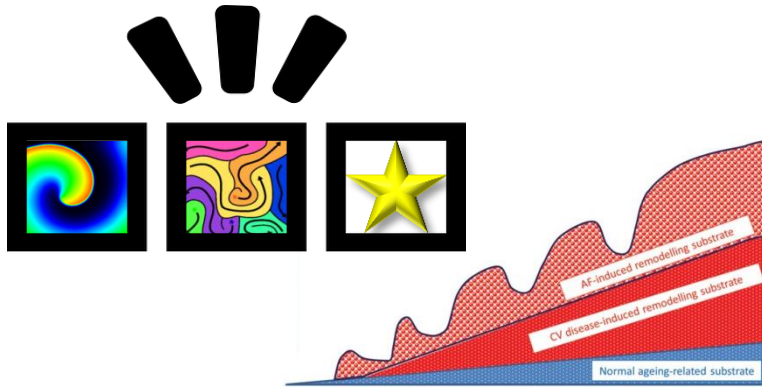


Hartcellen:  
dysfunctie en barrières



# Toekomst

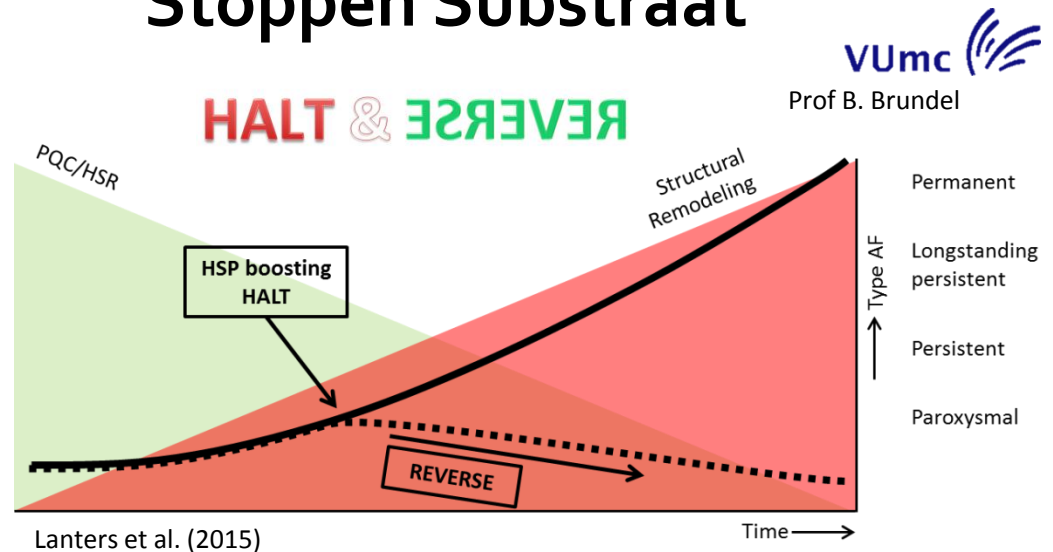
## Diagnose Substraat & Stadium



## Behandeling op Maat



## Stoppen Substraat





**Erasmus MC**  
Universitair Medisch Centrum Rotterdam



**TU Delft**

