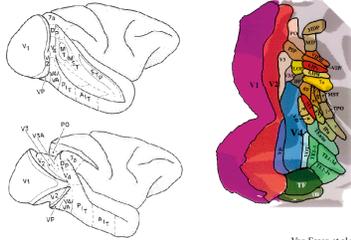
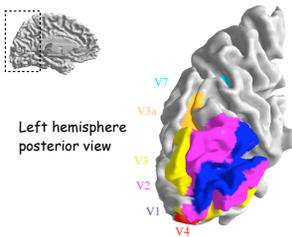


Macaque visual areas



Van Essen et al (2001) Vis Res

Human visual areas



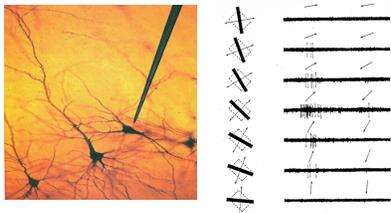
Left hemisphere
posterior view

What is a visual area?

PhACT:

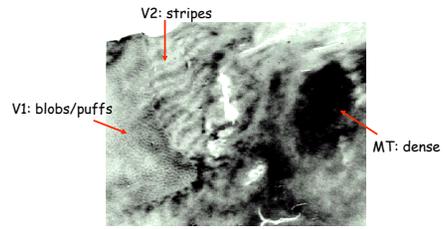
- Physiology
- Architecture
- Connections
- Topography

Physiology (V1 direction selectivity)



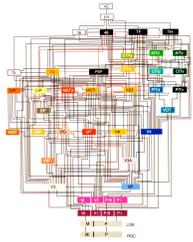
Hubel (1995)

Architecture (human visual cortex)



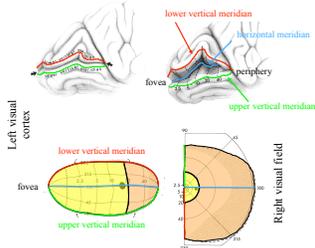
Tootell (1995) Cereb Cortex, 5:39-

Connections (macaque visual areas)



Van Essen et al

Topography (human V1)



Retinotopy

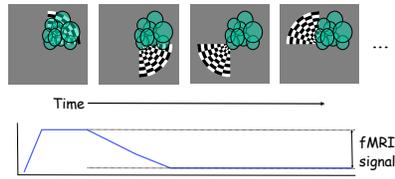
Radial component



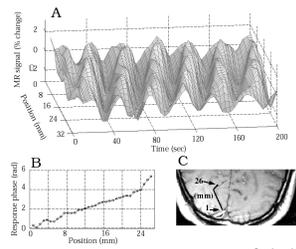
Angular component



Retinotopic map, timing of activity

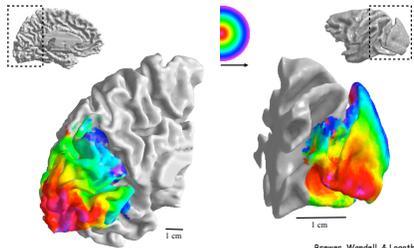


Traveling wave



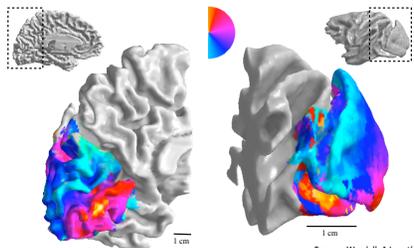
Engel et al (1994) Nature 369:525

Retinotopy: radial component



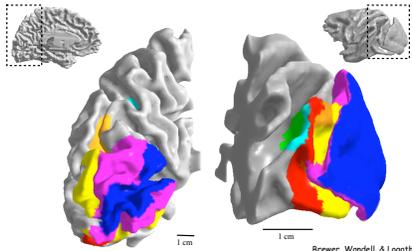
Brewer, Wandell, & Logothetis

Retinotopy: angular component



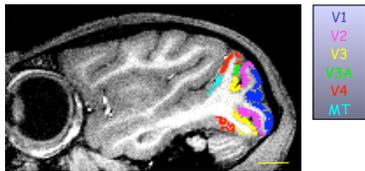
Brewer, Wandell, & Logothetis

Visual areas



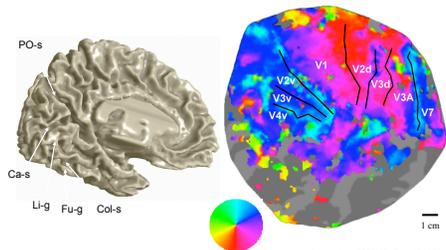
Brewer, Wandell, & Logothetis

Monkey visual areas



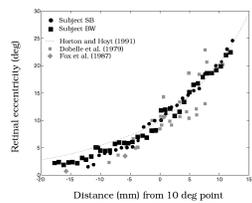
Brewer, Wandell, & Logothetis

Retinotopy (flat map)



Press et al (2001) *Vis Res*, 41:1321-

Cortical magnification



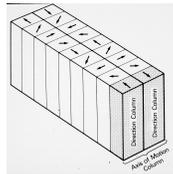
Engel, Glover, & Wandell (1997) *Cereb. Cortex* 7:181-

Functional specialization

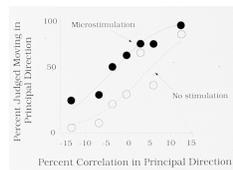
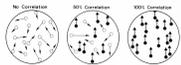
Match each visual area to its corresponding function:

V1	Motion
V2	Stereo
V3	Color
V3a	Texture segregation
V3b	Segmentation, grouping
V4	Recognition
V7	Face recognition
MT	Attention
MST	Working memory/mental imagery
etc	Etc.

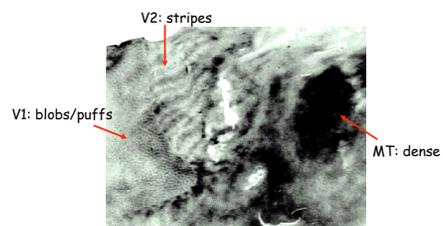
MT physiology: direction selectivity



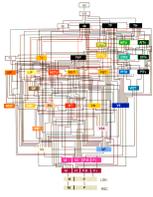
MT and motion perception



MT architecture (cytochrome oxidase)

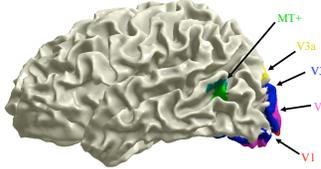


MT connections

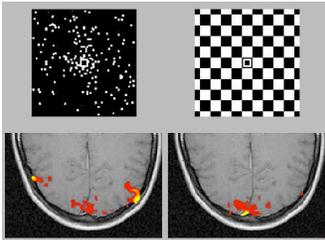


Corner-stone of motion pathway:
Magno - V1 layer 4C α - V1 layer 4B - MT - MST -

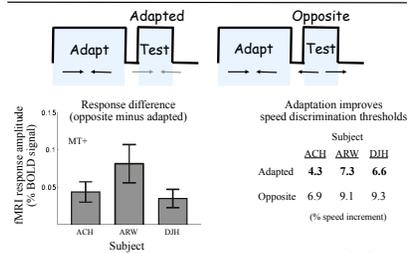
Human MT+ (V5)



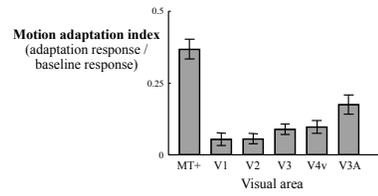
Localizing human MT+



Direction-selective adaptation

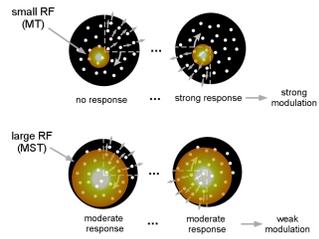


Direction-selectivity

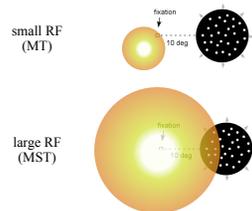


Huk, Ress, & Heeger (2001) Neuron, 32:161-

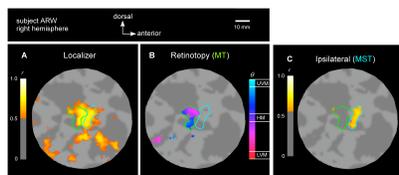
MT/MST retinotopy



MT/MST ipsilateral stimulation

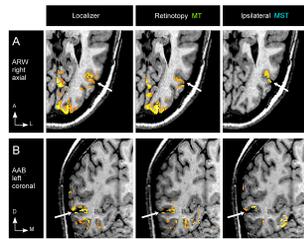


Subdividing MT+



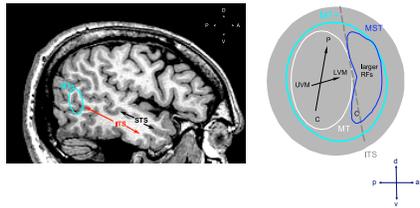
Huk, Dougherty, & Heeger, J Neurosci, 22:7195-7205, 2002

Subdividing human MT+



Huk, Dougherty, & Heeger, J Neurosci, 22:7195-7205, 2002

Human MT and MST



Human MT and MST

