

linking brain & behavior

<p>histology (tissue analysis)</p>	<p>--structure of cells --organization of cells --connections of cells</p>	<p>staining & imaging neurons</p>	<p>golgi silver stain</p>	<p>random single cells</p>	<p>darkly stains random (~ 5%) full neurons</p>	<p>useful structure approx seeing structure neurons</p>
			<p>nissl stains</p>	<p>cell bodies/ nuclei</p>	<p>stains cell bodies of neurons by darkening material in nucleus; darker purple stain in images</p>	<p>useful identify popular cell bodies</p>
			<p>myelin stains</p>	<p>axon/ fiber tracts</p>	<p>stains fatty myelin sheath that forms insulation around axons; darker stain= axons/ fiber & lighter stain= cell bodies/ dendrites</p>	<p>useful identify neuropathology</p>
<p>brain perturbation</p>	<p>--modify brain activity to observe behavioral changes</p>	<p>non-microscopic/ invasive</p>	<p>lesions</p>	<p>damage to neural tissue</p>	<p>accidental or intentional; biochemical/ neurotoxic</p>	<p>breaking something see how work</p>
			<p>ablation</p>	<p>removal of brain tissue</p>	<p>physical</p>	
<p>optogenetic</p>	<p>--use light to activate</p>	<p>--insert light sensitive proteins</p>				

s	specific ion channels and relate to behavior	to control behavior of cells				
measuring electrical activity						
recording graded potentials	--measure coordinated activity of 1000's of neurons	non-invasive neurophysiological stimulation & recording	EEG	measures the summed graded potentials from 1000's of neurons	1. EEG changes as behavior does 2. An EEG recorded from the cortex displays patterns & some are rhythmical ("Brain Waves"/ "neuronal oscillations")	knows but not because non-invasive since J brain a sa consist EEG ca up brain in Jell-C also m brain pec
			ERP	complex EEG waveforms related in time to a specific sensory event	sums electrical activity of neurons between two electrodes; detects fast-changing brain activity but is poor at localizing it	look function localiz
			MEG	3D localization of cell groups	detectors placed outside the	high resolution ERP &

					skull record magnetic potentials & permits a 3D localization of cell groups generating the measured field	than E know 'where' is
recording action potentials	-record action potentials of individual neurons	invasive recordings	single/multi-cell recording	intra & extracellular events from a single neuron	tiny microelectrodes are surgically implanted in the area of interest & those electrodes can identify the occurrence of electrical signals within a single neuron without contaminating activity of adjacent cells	amplify signal digital storage
brain imaging						
static images	--noninvasive examination of brain structure	static imaging techniques	CT	images structure & damage	uses multiple x-rays at different angles to make a 3D	invasive radio computer