

Materials List for:

Ocular Kinematics Measured by *In Vitro* Stimulation of the Cranial Nerves in the Turtle

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Materials

Name	Company	Catalog Number	Comments
Red-eared slider turtles	Kons Scientific	<i>Trachemys scripta elegans</i>	Large size (carapace length 15-20 cm)
Sodium chloride	Sigma-Aldrich Co. LLC.	S5886	
Potassium chloride	Sigma-Aldrich Co. LLC.	P5405	
Magnesium choride	Sigma-Aldrich Co. LLC.	M7304	
Sodium bicarbonate	Sigma-Aldrich Co. LLC.	S5761	
Dextrose	Sigma-Aldrich Co. LLC.	C5767	
Concentrated hydrochloric acid	Sigma-Aldrich Co. LLC.	H7020	
Calcium chloride	Sigma-Aldrich Co. LLC.	C7902	
pH meter	Oakton	pH 6+	
Suction stimulation electrode	A-M Systems	573000	Bipolar suction electrode. Note that 573000 has been replaced with 573050.
Capillary glass	A-M systems	626000	Single-barrel borosilicate capillary glass without microfilament, length 10 cm, outside diameter 1.0 mm, inner diameter 0.50 mm
Alternative suction stimulation electrode	A-M Systems	573050	Bipolar suction electrode. Requires larger diameter capillary glass: 627000, outside diameter 1.2 mm, inner diameter 0.68 mm
Stereoscope	Lieca	GZ7	Magnification range, 10x – 70x
Fiber optic light source	Amscope	HL250-A	150W Fiber optical microscope illuminator light box
Rongeurs	Carolina Biological Supply Company	625654	stainless steel, straight spring, 5.25"
Blunt dissection probe	Carolina Biological Supply Company	627405	Huber mall probe, double-ended probe and seeker, 6"
Microscissors	Carolina Biological Supply Company	623555	Iris microdissecting scissors, stainless steel, 0.5" blades, 4.75" long
Fine forceps	Sigma-Aldrich Co. LLC.	F6521	Jewelers forceps, dumont No. 5, inox alloy, 4.25"
Curved forceps	Sigma-Aldrich Co. LLC.	Z168696	Medium tip, curved forceps, stainless steel, 4"
Scalpel handle	Sigma-Aldrich Co. LLC.	S2896	Scalpel handles, No. 3, stainless steel
Scalpel blade	Sigma-Aldrich Co. LLC.	S2771	Scalpel blades, No. 11, steel
Guillotine	Harvard Apparatus	73-1918	Kleine guillotine type 7575

Spatula	Sigma	Z648299	Micro spoon and spatula weighing set. Use small spatula: 5.9" long x 0.07" diameter handle with square end: 0.17" x 1.3" long, other end round: 0.17" x 1.27" long
Hook	Autozone	98069	SureBilt hook and pick set. Use grinder to dull sharp points of hook to prevent injury to animals mouth.
95/5% O ₂ /CO ₂	Airgas, Inc.	X02OX95C2003102	5% Carbon dioxide balance oxygen certified standard gas mixture, size 200 Cylinder, CGA-296
Regulator	Airgas, Inc.	Y11244D296-AG	Single stage brass 0-100 psi analytical cylinder regulator CGA-296 with needle outlet. Use brass adjustable airline pipe valve to go from 3/8", inner diameter, vinyl airline tubing connected to regulator to a 3/16", inner diameter, airline connection going to airstone or glass pasteur pipette.
Adjustable airline pipe valve	Doctors Foster and Smith	CD-12061	Brass valve
Rigid table	Unknown	Unknown	Auto-clave door laid on top of a sturdy table. Nine 5" diameter tennis balls isolate vibrations from the top surface of the table.
5" tennis ball	Petco Animal Supplies, Inc.	712868	Petco Jumbo Pet Tennis Ball: balls are unsliced and held within an integrated frame on the underside part of the autoclave door.
Alternative vibration isolation table	Newport Corporation	INT1-36-6-N	Rigid vibration control system, integrity 1: Surface dimensions, 3' x 6'
Gimbal	ISI, International Scientific Instruments, Inc.	Stage from SUPER III-A Scanning EM	5-axis eucentric stage: X, Y, and Z linear movements, ±20 mm, 0.1 mm precision; Rotations, vertical, ±10°, and horizontal, ±12.5°, with 1.25° precision. Note: from decommission instrument.
Chuck for gimbal	Unknown	Unknown	Chuck from an old microtome of unknown manufacture was machined to fit the shaft of the specimen holder of the Scanning EM stage
Alternative gimbal	ThorLabs, Inc.	GN2/M with MBT602/M	Dual-axis goniometer (GN2/M) mounted on 3-axis microblock stage with thumbscrew adjusters (MBT602/M): design a chuck to hold turtle head with eye at 12.7 mm above top surface of goniometer (distance to point of rotation)
Video-based eye tracking system	Arrington Research, Inc.	ViewPoint EyeTracker, PC-60	Tracking method: Infrared video by dark pupil; Black and white camera (Item BC02): 30 Hz, 640 x 480; System requirements: Windows 2000, XP, 7, 8, 8.1, 10; Visual range: Horizontal +/- 44°; vertical +/- 20°; Accuracy ~0.5°; Spatial resolution ~0.15°; Pupil size resolution ~0.03 mm; Eye data: X, Y position of gaze, pupil height and width, torsion, delta time, total time, and regions of interest (ROI); Real-

			time communication (Item 0022): 4-Channel AnalogOut with eight TTL input channels to mark codes into the data file
Multi-position magnetic base	Harbor Freight Tools	Pittsburg, item #5645	Magnetic holder reaches up to 12" and produces 45 lbs. of magnetic pull. Use to position camera. Machine thread holes onto the end of the rod to mount cameras.
Micromanipulator	Kopf	900	5 axis manipulation for mount of suction electrode: X, Y, Z linear travel, 2 axis of rotation
Dissection scope on boom	Lieca	GZ6	Magnification range, 6.7x – 40x
Nerve/muscle stimulator	Astro-Med Grass Telefactor	Grass S88	Dual pulse voltage stimulator: two output channels that can be operated independently or synchronized to generate non-isolated constant voltage pulses (10 mv to 150 V). Pulses can be single (10 μ sec to 10 sec), repetitive (0.01 Hz to 1 KHz), and trains (1 ms to 10 s) and synchronized with TTL inputs and output. Send TTL outputs via the output channels of a DB25 connector to the TTL input channels of the ViewPoint EyeTracker. Note: Astro-Med Grass Telefactor is no longer in business.
Current isolation device	Astro-Med Grass Telefactor	PSIU6	Current stimulus isolation unit: enables safe delivery of constant currents by the S88 to the preparation. The PSIU6 connects by a BNC cable to one of the output channels of the S88. Multiplier switches on the PSIU6 allow the S88 to generate a wide array of current amplitudes ranging from 0.1 μ A to 15 mA.
Alternative nerve/muscle stimulator with isolation	A-M Systems	2100	Isolated Pulse Stimulator: Unit has built-in isolator to produce constant currents.