

Ultrasonic transducer

- 1: Anastasiadis P, Mohammadabadi A, Fishman MJ, Smith JA, Nguyen BA, Hersh DS, Frenkel V. Design, characterization and evaluation of a laser-guided focused ultrasound system for preclinical investigations. *Biomed Eng Online*. 2019 Mar 28;18(1):36. doi: 10.1186/s12938-019-0656-z. PubMed PMID: 30922312; PubMed Central PMCID: PMC6440155.
- 2: Prada F, Kalani MYS, Yagmurlu K, Norat P, Del Bene M, DiMeco F, Kassell NF. Applications of Focused Ultrasound in Cerebrovascular Diseases and Brain Tumors. *Neurotherapeutics*. 2019 Jan;16(1):67-87. doi: 10.1007/s13311-018-00683-3. Review. PubMed PMID: 30406382; PubMed Central PMCID: PMC6361053.
- 3: Giannakou M, Yiallouras C, Menikou G, Ioannides C, Damianou C. MRI-guided frameless biopsy robotic system with the inclusion of unfocused ultrasound transducer for brain cancer ablation. *Int J Med Robot*. 2019 Feb;15(1):e1951. doi: 10.1002/rcs.1951. Epub 2018 Sep 12. PubMed PMID: 30157310.
- 4: Baldo CF, Almeida D, Wendt-Hornickle E, Guedes A. Transversus abdominis plane block in ponies: a preliminary anatomical study. *Vet Anaesth Analg*. 2018 May;45(3):392-396. doi: 10.1016/j.vaa.2018.01.009. Epub 2018 Feb 7. PubMed PMID: 29559203.
- 5: Matrone G, Ramalli A, Savoia AS, Quaglia F, Castellazzi G, Morbini P, Piastra M. An Experimental Protocol for Assessing the Performance of New Ultrasound Probes Based on CMUT Technology in Application to Brain Imaging. *J Vis Exp*. 2017 Sep 24;(127). doi: 10.3791/55798. PubMed PMID: 28994803; PubMed Central PMCID: PMC5752329.
- 6: Marsac L, Chauvet D, La Greca R, Boch AL, Chaumoitre K, Tanter M, Aubry JF. Ex vivo optimisation of a heterogeneous speed of sound model of the human skull for non-invasive transcranial focused ultrasound at 1 MHz. *Int J Hyperthermia*. 2017 Sep;33(6):635-645. doi: 10.1080/02656736.2017.1295322. Epub 2017 Mar 7. PubMed PMID: 28540778.
- 7: Zhong S, Li G, Yang L, Yan Q, Wang Y, Zhao G, Li Y. Anatomic and Ultrasonic Study Based on Selective Tibial Neurotomy. *World Neurosurg*. 2017 Mar;99:214-225. doi: 10.1016/j.wneu.2016.11.023. Epub 2016 Dec 8. PubMed PMID: 27939323.
- 8: Hersh DS, Kim AJ, Winkles JA, Eisenberg HM, Woodworth GF, Frenkel V. Emerging Applications of Therapeutic Ultrasound in Neuro-oncology: Moving Beyond Tumor Ablation. *Neurosurgery*. 2016 Nov;79(5):643-654. Review. PubMed PMID: 27552589; PubMed Central PMCID: PMC5073037.
- 9: Price KD, Sin VW, Mougenot C, Pichardo S, Looi T, Waspe AC, Drake JM. Design and validation of an MR-conditional robot for transcranial focused ultrasound surgery in infants. *Med Phys*. 2016 Sep;43(9):4983. doi: 10.1118/1.4955174. PubMed PMID: 27587029.
- 10: Horodyckid C, Canney M, Vignot A, Boisgard R, Drier A, Huberfeld G, François C, Prigent A, Santin MD, Adam C, Willer JC, Lafon C, Chapelon JY, Carpentier A. Safe long-term repeated disruption of the blood-brain barrier using an implantable ultrasound device: a multiparametric study in a primate model. *J Neurosurg*. 2017 Apr;126(4):1351-1361. doi: 10.3171/2016.3.JNS151635. Epub 2016 Jun 10. PubMed PMID: 27285538.
- 11: Pennell T, Yi JL, Kaufman BA, Krishnamurthy S. Noninvasive measurement of cerebrospinal fluid flow using an ultrasonic transit time flow sensor: a preliminary study. *J Neurosurg Pediatr*. 2016

Mar;17(3):270-7. doi: 10.3171/2015.7.PEDS1577. Epub 2015 Nov 13. PubMed PMID: 26565943.

12: Carpentier A. [Laser and Ultrasound brain tumor therapy: from the present to the future of neurosurgery]. Bull Acad Natl Med. 2015 Nov;199(8-9):1307-1321. French. PubMed PMID: 29874420.

13: Pathak A, Coleman L, Roth A, Stanley J, Bailey L, Markham P, Ewen S, Morel C, Despas F, Honton B, Senard JM, Fajadet J, Mahfoud F. Renal sympathetic nerve denervation using intraluminal ultrasound within a cooling balloon preserves the arterial wall and reduces sympathetic nerve activity. EuroIntervention. 2015 Aug;11(4):477-84. doi: 10.4244/EIJV11I4A96. PubMed PMID: 26298415.

14: Miller GW, Eames M, Snell J, Aubry JF. Ultrashort echo-time MRI versus CT for skull aberration correction in MR-guided transcranial focused ultrasound: In vitro comparison on human calvaria. Med Phys. 2015 May;42(5):2223-33. doi: 10.1118/1.4916656. PubMed PMID: 25979016.

15: Sutton JT, Raymond JL, Verleye MC, Pyne-Geithman GJ, Holland CK. Pulsed ultrasound enhances the delivery of nitric oxide from bubble liposomes to ex vivo porcine carotid tissue. Int J Nanomedicine. 2014 Oct 6;9:4671-83. doi: 10.2147/IJN.S63850. eCollection 2014. PubMed PMID: 25336947; PubMed Central PMCID: PMC4200074.

16: N'Djin WA, Burtnyk M, Lipsman N, Bronskill M, Kucharczyk W, Schwartz ML, Chopra R. Active MR-temperature feedback control of dynamic interstitial ultrasound therapy in brain: in vivo experiments and modeling in native and coagulated tissues. Med Phys. 2014 Sep;41(9):093301. doi: 10.1118/1.4892923. PubMed PMID: 25186419.

17: Bouchoux G, Shivashankar R, Abruzzo TA, Holland CK. In silico study of low-frequency transcranial ultrasound fields in acute ischemic stroke patients. Ultrasound Med Biol. 2014 Jun;40(6):1154-66. doi: 10.1016/j.ultrasmedbio.2013.12.025. Epub 2014 Mar 14. PubMed PMID: 24631377; PubMed Central PMCID: PMC4012005.

18: Pulkkinen A, Werner B, Martin E, Hynnen K. Numerical simulations of clinical focused ultrasound functional neurosurgery. Phys Med Biol. 2014 Apr 7;59(7):1679-700. doi: 10.1088/0031-9155/59/7/1679. Epub 2014 Mar 12. PubMed PMID: 24619067; PubMed Central PMCID: PMC4083098.

19: Marquet F, Boch AL, Pernot M, Montaldo G, Seilhean D, Fink M, Tanter M, Aubry JF. Non-invasive ultrasonic surgery of the brain in non-human primates. J Acoust Soc Am. 2013 Aug;134(2):1632-9. doi: 10.1121/1.4812888. PubMed PMID: 23927203.

20: Rössel T, Kersting S, Heller AR, Koch T. Combination of high-resolution ultrasound-guided perivascular regional anesthesia of the internal carotid artery and intermediate cervical plexus block for carotid surgery. Ultrasound Med Biol. 2013 Jun;39(6):981-6. doi: 10.1016/j.ultrasmedbio.2013.01.002. Epub 2013 Mar 15. PubMed PMID: 23499343.

21: Chauvet D, Marsac L, Pernot M, Boch AL, Guillemin R, Salameh N, Souris L, Darrasse L, Fink M, Tanter M, Aubry JF. Targeting accuracy of transcranial magnetic resonance-guided high-intensity focused ultrasound brain therapy: a fresh cadaver model. J Neurosurg. 2013 May;118(5):1046-52. doi: 10.3171/2013.1.JNS12559. Epub 2013 Mar 1. PubMed PMID: 23451909.

22: Monteith SJ, Medel R, Kassell NF, Wintermark M, Eames M, Snell J, Zadicario E, Grinfeld J, Sheehan JP, Elias WJ. Transcranial magnetic resonance-guided focused ultrasound surgery for trigeminal neuralgia: a cadaveric and laboratory feasibility study. J Neurosurg. 2013 Feb;118(2):319-28. doi: 10.3171/2012.10.JNS12186. Epub 2012 Nov 16. PubMed PMID: 23157185.

- 23: Luyet C, Eng KT, Kertes PJ, Avila A, Muni RH, McHardy P. Real-time evaluation of diffusion of the local anesthetic solution during peribulbar block using ultrasound imaging and clinical correlates of diffusion. *Reg Anesth Pain Med.* 2012 Jul-Aug;37(4):455-9. doi: 10.1097/AAP.0b013e31825541e8. PubMed PMID: 22609643.
- 24: Palte HD, Gayer S, Arrieta E, Scot Shaw E, Nose I, Lee E, Arheart KL, Dubovy S, Birnbach DJ, Parel JM. Are ultrasound-guided ophthalmic blocks injurious to the eye? A comparative rabbit model study of two ultrasound devices evaluating intraorbital thermal and structural changes. *Anesth Analg.* 2012 Jul;115(1):194-201. doi: 10.1213/ANE.0b013e318253622e. Epub 2012 Apr 13. PubMed PMID: 22504211; PubMed Central PMCID: PMC3381790.
- 25: Shimizu J, Fukuda T, Abe T, Ogihara M, Kubota J, Sasaki A, Azuma T, Sasaki K, Shimizu K, Oishi T, Umemura S, Furuhata H. Ultrasound safety with midfrequency transcranial sonothrombolysis: preliminary study on normal macaca monkey brain. *Ultrasound Med Biol.* 2012 Jun;38(6):1040-50. doi: 10.1016/j.ultrasmedbio.2012.02.009. Epub 2012 Apr 3. PubMed PMID: 22475695.
- 26: Ohmura T, Fukushima T, Shibaguchi H, Yoshizawa S, Inoue T, Kuroki M, Sasaki K, Umemura S. Sonodynamic therapy with 5-aminolevulinic acid and focused ultrasound for deep-seated intracranial glioma in rat. *Anticancer Res.* 2011 Jul;31(7):2527-33. PubMed PMID: 21873170.
- 27: Nakagawa M, Hayashi M, Houki S, Matsubara K, Kamijima K, Nakanishi S, Abe Y, Ohseto K. [Ultrasound guided T2 intercostal nerve block: a comparison with stellate ganglion block under the blind technique and ultrasound guided technique]. *Masui.* 2010 May;59(5):604-9. Japanese. PubMed PMID: 20486572.
- 28: McDannold N, Clement GT, Black P, Jolesz F, Hynynen K. Transcranial magnetic resonance imaging- guided focused ultrasound surgery of brain tumors: initial findings in 3 patients. *Neurosurgery.* 2010 Feb;66(2):323-32; discussion 332. doi: 10.1227/01.NEU.0000360379.95800.2F. PubMed PMID: 20087132; PubMed Central PMCID: PMC2939497.
- 29: Bradley WG Jr. MR-guided focused ultrasound: a potentially disruptive technology. *J Am Coll Radiol.* 2009 Jul;6(7):510-3. doi: 10.1016/j.jacr.2009.01.004. Review. PubMed PMID: 19560068.
- 30: Nonaka M, Yamamoto M, Yoshino S, Umemura S, Sasaki K, Fukushima T. Sonodynamic therapy consisting of focused ultrasound and a photosensitizer causes a selective antitumor effect in a rat intracranial glioma model. *Anticancer Res.* 2009 Mar;29(3):943-50. PubMed PMID: 19414331.
- 31: Yoshino S, Fukushima T, Hayashi S, Nonaka M, Ogawa K, Sasaki K, Umemura S. Effects of focused ultrasound sonodynamic treatment on the rat blood-brain barrier. *Anticancer Res.* 2009 Mar;29(3):889-95. PubMed PMID: 19414324.
- 32: Alizad A, Whaley DH, Greenleaf JF, Fatemi M. Image features in medical vibro-acoustography: in vitro and in vivo results. *Ultrasonics.* 2008 Nov;48(6-7):559-62. doi: 10.1016/j.ultras.2008.04.014. Epub 2008 May 25. PubMed PMID: 18599102; PubMed Central PMCID: PMC2651638.
- 33: Strowitzki M, Brand S, Ketter R, Steudel WI, Jenderka KV. Ultrasonic radio-frequency spectrum analysis differentiates normal and edematous brain tissue from meningioma intraoperatively. *J Neuroimaging.* 2008 Jan;18(1):73-80. doi: 10.1111/j.1552-6569.2007.00173.x. PubMed PMID: 18190500.
- 34: Foley JL, Little JW, Vaezy S. Effects of high-intensity focused ultrasound on nerve conduction. *Muscle Nerve.* 2008 Feb;37(2):241-50. PubMed PMID: 18041054.

- 35: Deam RK, Kluger R, Barrington MJ, McCutcheon CA. Investigation of a new echogenic needle for use with ultrasound peripheral nerve blocks. *Anaesth Intensive Care*. 2007 Aug;35(4):582-6. PubMed PMID: 18020079.
- 36: Strowitzki M, Komenda Y, Eymann R, Steudel WI. Accuracy of ultrasound-guided puncture of the ventricular system. *Childs Nerv Syst*. 2008 Jan;24(1):65-9. Epub 2007 Jul 3. PubMed PMID: 17609966.
- 37: Pernot M, Aubry JF, Tanter M, Boch AL, Marquet F, Kujas M, Seilhean D, Fink M. In vivo transcranial brain surgery with an ultrasonic time reversal mirror. *J Neurosurg*. 2007 Jun;106(6):1061-6. PubMed PMID: 17564179.
- 38: Roessel T, Wiessner D, Heller AR, Zimmermann T, Koch T, Litz RJ. High-resolution ultrasound-guided high interscalene plexus block for carotid endarterectomy. *Reg Anesth Pain Med*. 2007 May-Jun;32(3):247-53. PubMed PMID: 17543822.
- 39: White PJ. Transcranial focused ultrasound surgery. *Top Magn Reson Imaging*. 2006 Jun;17(3):165-72. Review. PubMed PMID: 17414073.
- 40: Clement GT, White PJ, King RL, McDannold N, Hynynen K. A magnetic resonance imaging-compatible, large-scale array for trans-skull ultrasound surgery and therapy. *J Ultrasound Med*. 2005 Aug;24(8):1117-25. PubMed PMID: 16040827.
- 41: Foley JL, Little JW, Starr FL 3rd, Frantz C, Vaezy S. Image-guided HIFU neurolysis of peripheral nerves to treat spasticity and pain. *Ultrasound Med Biol*. 2004 Sep;30(9):1199-207. PubMed PMID: 15550323.
- 42: Hynynen K, Clement GT, McDannold N, Vykhodtseva N, King R, White PJ, Vitek S, Jolesz FA. 500-element ultrasound phased array system for noninvasive focal surgery of the brain: a preliminary rabbit study with ex vivo human skulls. *Magn Reson Med*. 2004 Jul;52(1):100-7. PubMed PMID: 15236372.
- 43: Amstutz C, Caversaccio M, Kowal J, Bächler R, Nolte LP, Häusler R, Styner M. A-mode ultrasound-based registration in computer-aided surgery of the skull. *Arch Otolaryngol Head Neck Surg*. 2003 Dec;129(12):1310-6. PubMed PMID: 14676157.
- 44: Kennedy JE, Ter Haar GR, Cranston D. High intensity focused ultrasound: surgery of the future? *Br J Radiol*. 2003 Sep;76(909):590-9. Review. PubMed PMID: 14500272.
- 45: Stimac A, Ivancević B, Jambrošić K. Directivity pattern of neurosurgical endoscopic ultrasonic probes. *Ultrasonics*. 2002 May;40(1-8):813-8. PubMed PMID: 12160050.
- 46: Friedman HS, Win M, Hussain A, Sinha A. Effects of cardiac glycosides on atrial contractile dysfunction after short-term atrial fibrillation. *Chest*. 2000 Oct;118(4):1116-26. PubMed PMID: 11035687.
- 47: Lee LA, Simon C, Bove EL, Mosca RS, Ebbini ES, Abrams GD, Ludomirsky A. High intensity focused ultrasound effect on cardiac tissues: potential for clinical application. *Echocardiography*. 2000 Aug;17(6 Pt 1):563-6. PubMed PMID: 11000591.
- 48: Oka K, Go Y, Yamamoto M, Kumate S, Tomonaga M. Experience with an ultrasonic aspirator in neuroendoscopy. *Minim Invasive Neurosurg*. 1999 Mar;42(1):32-4. PubMed PMID: 10228937.
- 49: Schreiner S, Galloway RL Jr, Lewis JT, Bass WA, Muratore DM. An ultrasonic approach to

- localization of fiducial markers for interactive, image-guided neurosurgery-Part II: Implementation and automation. *IEEE Trans Biomed Eng.* 1998 May;45(5):631-41. PubMed PMID: 9581062.
- 50: Lewis JT, Galloway RL Jr, Schreiner S. An ultrasonic approach to localization of fiducial markers for interactive, image-guided neurosurgery-Part I: Principles. *IEEE Trans Biomed Eng.* 1998 May;45(5):620-30. PubMed PMID: 9581061.
- 51: Hata N, Dohi T, Iseki H, Takakura K. Development of a frameless and armless stereotactic neuronavigation system with ultrasonographic registration. *Neurosurgery.* 1997 Sep;41(3):608-13; discussion 613-4. PubMed PMID: 9310978.
- 52: Scholz PM, Kedem J, Cheinberg BV, Weiss HR. The oxygen wasting effect of isoproterenol is altered by chemical denervation and cardiac hypertrophy. *Basic Res Cardiol.* 1996 Jul-Aug;91(4):308-18. PubMed PMID: 8874780.
- 53: Gomez CR. Ultrasonic ventriculostomy stylet. *Neurosurgery.* 1995 Nov;37(5):1020-1. PubMed PMID: 8559327.
- 54: Koivukangas J, Louhisalmi Y, Alakuijala J, Oikarinen J. Ultrasound-controlled neuronavigator-guided brain surgery. *J Neurosurg.* 1993 Jul;79(1):36-42. PubMed PMID: 8315467.
- 55: Kuchiwaki H, Inao S, Andoh K, Itoh J, Sakuma N, Takishita T, Ogura Y. Continuous recording of changes in intracranial pressure using interference echoes of ultrasonic wave: a preliminary report of practicality and clinical evaluation. *J Clin Ultrasound.* 1992 Sep;20(7):447-55. PubMed PMID: 1324948.
- 56: Koivukangas J, Tervonen O, Alasaarela E, Ylitalo J, Nyström S. Completely computer-focused ultrasound imaging. First clinical imaging results. *J Ultrasound Med.* 1989 Dec;8(12):675-83. PubMed PMID: 2685345.
- 57: Minson R, McRitchie R, Chalmers J. Effects of neuropeptide Y on the renal, mesenteric and hindlimb vascular beds of the conscious rabbit. *J Auton Nerv Syst.* 1989 Jul;27(2):139-46. PubMed PMID: 2550538.
- 58: Tsutsumi Y, Andoh Y, Sakaguchi J. A new ultrasound-guided brain biopsy technique through a burr hole. Technical note. *Acta Neurochir (Wien).* 1989;96(1-2):72-5. PubMed PMID: 2648771.
- 59: Mesiano S, Wickham PJ, Young IR, Browne CA, Thorburn GD. Continuous measurement of biparietal distance in the intact and hypophysectomized fetal sheep using ultrasound. *J Dev Physiol.* 1988 Aug;10(4):347-56. PubMed PMID: 3204264.
- 60: Barragry TP, Blatchford JW, Tuna IC, Lillehei TJ, Ring WS. Left ventricular dysfunction in a canine model of chronic cyanosis. *Surgery.* 1987 Aug;102(2):362-70. PubMed PMID: 3616922.
- 61: Gavrilov LR, Vykhodtseva NI, Konopatskaia II, Dmitriev VN, Elagin VA. [Ultrasonic hyperthermia of the animal brain]. *Med Radiol (Mosk).* 1987 Jun;32(6):49-54. Russian. PubMed PMID: 3600225.
- 62: Knight DR, Thomas JX Jr, Randall WC, Vatner SF. Effects of left circumflex coronary flow transducer implantation on posterior wall innervation. *Am J Physiol.* 1987 Mar;252(3 Pt 2):H536-9. PubMed PMID: 3826398.
- 63: Kanazawa I, Shiraishi K, Kamitani H, Sato J, Masuzawa H. [Intraoperative ultrasonography through a burr hole: clinical trial of ultrasound-guided stereotactic surgery]. *No Shinkei Geka.* 1986 Mar;14(3 Suppl):295-300. Japanese. PubMed PMID: 3010152.

- 64: Johnson I. Intra-operative ultrasound. *J Neurosurg Nurs.* 1984 Aug;16(4):208-10. PubMed PMID: 6565750.
- 65: Fry FJ, Goss SA, Patrick JT. Transkull focal lesions in cat brain produced by ultrasound. *J Neurosurg.* 1981 May;54(5):659-63. PubMed PMID: 7014793.
- 66: Buckland RW, Manners JM. Venous air embolism during neurosurgery. A comparison of various methods of detection in man. *Anaesthesia.* 1976 Jun;31(5):633-43. PubMed PMID: 937712.
- 67: Hernández-Pérez MJ, Raichle ME, Stone HL. The role of the peripheral sympathetic nervous system in cerebral blood flow autoregulation. *Stroke.* 1975 May-Jun;6(3):284-92. PubMed PMID: 239471.
- 68: Edmonds-Seal J, Maroon JC. Detection of air embolus by Doppler ultrasonics. *Proc R Soc Med.* 1969 Oct;62(10):1022. PubMed PMID: 5346162; PubMed Central PMCID: PMC1810801.

From:
<https://neurosurgerywiki.com/wiki/> - **Neurosurgery Wiki**



Permanent link:
https://neurosurgerywiki.com/wiki/doku.php?id=ultrasonic_transducer

Last update: **2024/06/07 02:55**