

Acronyms and Glossary of Terms

Acronyms

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| AANs | —American Association of Neurological Surgeons |
| ACTH | —adrenocorticotrophic hormone |
| ADAMHA | —Alcohol, Drug Abuse, and Mental Health Administration |
| AHCPR | —Agency for Health Care Policy and Research |
| AIDS | —acquired immunodeficiency syndrome |
| ALS-P-D | —amyotrophic lateral sclerosis-Parkinson's disease-dementia |
| BEAC | —Biomedical Ethics Advisory Committee |
| BMAA | —Beta-N-methyl amino-L-alanine |
| CCL | —continuous cell line |
| CNS | —central nervous system |
| CSF | —cerebrospinal fluid |
| DHHS | —Department of Health and Human Services |
| FDA | —Food and Drug Administration |
| FFDCA | —Federal Food, Drug, and Cosmetic Act |
| GABA | —gamma-aminobutyric acid |
| GnRH | —gonadotrophin-releasing hormone |
| GRAFT | —General Registry of Adrenal-Fetal Transplantation |
| HAMM | —human amnion membrane matrix |
| HCFA | —Health Care Financing Administration |
| HIV | —human immunodeficiency virus |
| IND | —investigational new drug application |
| IRB | —Institutional Review Board |
| LC | —locus ceruleus |
| MAO-B | —monoamine oxidase B |
| MND | —motor neuron disease |
| MPP+ | —methylpyridine |
| MPTP | —1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine |
| NDA | —new drug application |
| NGF | —nerve growth factor |
| NIH | —National Institutes of Health |
| NINDS | —National Institute of Neurological Disorders and Stroke |
| NOTA | —National Organ Transplant Act |
| 6-OHDA | —6-hydroxydopamine |
| PHSA | —Public Health Service Act |
| PMA | —premarket approval |
| PNS | —peripheral nervous system |
| PSP | —progressive supranuclear palsy |
| TH | —tyrosine hydroxylase |
| THA | —tetrahydroaminoacridine |
| UAGA | —Uniform Anatomical Gift Act |
| UPF | —United Parkinson Foundation |
| VP | —vasopressin |

Glossary of Terms

Abortion: The termination of pregnancy, whether spontaneous (occurring naturally, a miscarriage) or induced. Induced abortions may be therapeutic (to treat a medical condition of the pregnant woman) or nontherapeutic (elective).

Abortus: An aborted fetus. See *fetus*.

Acetylcholine: A neurotransmitter involved in learning and memory. Acetylcholine is diminished in Alzheimer's disease. See *neurotransmitter*.

Adrenal medulla: The innermost region of the adrenal gland; cells from this region can produce dopamine in the brain and are potential candidates for neural grafting, particularly to relieve the symptoms of Parkinson's disease. See *chromaffin cell*.

AIDS, acquired immunodeficiency syndrome: A condition in which the body's immune system is depressed due to infection by a retrovirus. See *HIV*, *retrovirus*.

Allograft: Tissue or cells transplanted between individuals of the same species.

Alzheimer's disease: A neurodegenerative disease caused by abnormality and death of nerve cells in several areas of the brain; the nerve cell loss is associated with a deficit of several chemicals in the brain, notably acetylcholine, resulting in dementia. The cause of the nerve cell abnormality and loss is unknown.

Amyotrophic lateral sclerosis, ALS, Lou Gehrig's disease: A neurodegenerative disease caused by death of nerve cells in the central nervous system that control muscle movement. Paralysis, but not dementia, results. The cause of the nerve cell death is unknown.

Animal model: An animal that shares or in which can be replicated features of human disorders and that is used in experimental studies of those disorders. Animal models may be homologous (sharing a common origin) or analogous (being similar in effect) to the human disease or injury being studied.

Astrocyte: A type of glial cell in the central nervous system; after injury to the central nervous system, astrocytes form a scar at the site of nerve damage and block regeneration of axons. See *glial cell*.

Autograft: A transplant in which the recipient's own tissue or cells are used; autografts pose no problem of rejection by the recipient and provide a ready source of grafting material. Adrenal medullary grafts are an example of autografts. See *adrenal medulla*, *rejection*.

Autonomic nervous system: Cells in the central and peripheral nervous systems that control such involuntary functions of the body as temperature, metabolism, and response to stress.

Axon: The long extension of the neuron along which electrical impulses travel. See *neuron*.

Basal ganglia: A group of nuclei in the upper part of the brain that help mediate movement. See *substantial nigra*, *striatum*.

Biologic: A biological product for the prevention, treatment, diagnosis, or cure of human diseases or injuries; examples are vaccines, blood, and antitoxins.

Blood-brain barrier: A layer of tightly juxtaposed endothelial cells in blood vessel walls that protects much of the central nervous system by selectively filtering out some substances while allowing others to pass from the blood into the brain. See *endothelial cell*.

Brain: One of the two components of the central nervous system, the brain consists of the cerebral cortex, the cerebellum, the upper brain, and the brain stem. The brain is the center of thought, action, and emotion. It receives sensory impulses and transmits motor impulses.

Brain stem: The lowest part of the brain, connecting the cerebral cortex and upper brain to the spinal cord. Nuclei in the brain stem regulate essential bodily functions such as heart rate, blood pressure, and respiratory activity. See *nucleus*.

Cadaveric fetal tissue: Tissue obtained from a dead fetus.

Catecholamine: A class of neurotransmitter including dopamine, norepinephrine, and epinephrine (a hormone secreted by the adrenal medulla).

Cell body: The relatively compact portion of the neuron, which contains the nucleus. Compare *axon*, *dendrite*.

Cell culture: Cells grown in the laboratory; although the cells proliferate, they do not organize into tissue. See *primary cell culture*, *cell line*, and *continuous cell line*.

Cell line: A group of cells derived from a primary culture at the time of first subculture; an established cell line has the potential for indefinite subculture in vitro. See *continuous cell line*.

Cell suspension: Individual cells separated out from solid tissue and placed in a supporting fluid; also, as a form of neural grafting, injection of such cells into a host central nervous system. Compare *solid tissue graft*.

Central nervous system, CNS: One of the two major divisions of the nervous system, made up of the brain and spinal cord. Compare *peripheral nervous system*.

Cerebral cortex: The rounded upper portion of the brain, consisting of layers of neural cells and the pathways that connect them. The cerebral cortex is divided into four lobes on each side and is the part of the brain in which thinking and decisionmaking take place. See *brain*.

Cerebrospinal fluid: Fluid manufactured in the brain and contained within the brain and spinal cord; it circulates in the central nervous system and is absorbed into and removed by veins.

Chromaffin cell: A nonneuronal cell in the adrenal medulla derived from precursor cells that also generate neurons in the autonomic nervous system. Chromaffin cells produce neurotransmitters that are chemically related to those synthesized in the autonomic and central nervous systems. See *adrenal medulla*, *precursor cell*.

Clinical test, clinical research: Experimental analysis (as of drugs or surgery) using human beings.

Conceptus: The product of conception. See *embryo*, *fetus*.

Continuous cell line: Sustained, self-propagating cells in culture; such cells may arise spontaneously in primary cell culture, be derived from tumors, or be created through genetic engineering. See *cell culture*, *genetically engineered cell*.

Cryopreservation: The freezing and storage of cells or tissue at -1960 centigrade for use later.

Dementia: Loss of intellectual function.

Demyelinating disorder: See *demyelination*, *multiple sclerosis*.

Demyelination: Destruction of the myelin sheath, whether through injury or disease. See *myelin sheath*.

Dendrite: Branched extension of the neuron cell body which receives impulses from another neuron. See *synapse*.

Deprenyl: A drug shown to slow the progression of Parkinson's disease in clinical trials by blocking the activity of MAO-B. See *MAO-B*.

Device: Broadly, an instrument, apparatus, implant, in vitro reagent, or other similar or related article intended for use in the diagnosis, cure, mitigation, treatment, or prevention of disease, or intended to affect the structure or function of the body, that works through nonchemical, nonmetabolic means.

Differentiation: The stage of development during which brain cells stop dividing and acquire distinct characteristics and functions. Compare *migration*, *proliferation*.

Dopamine: A neurotransmitter that in insufficient amounts produces the symptoms of Parkinson's disease. See *catecholamine*, *neurotransmitter*.

Dorsal root: The portion of the nerve root that brings sensory information from the body to the spinal cord. See *nerve root*.

Drug: An article (other than foods or devices) intended for use in the diagnosis, cure, mitigation, treatment, or prevention of disease and designed to affect the structure or any function of the body.

Dura mater: The tough, outermost membrane surrounding the brain and spinal cord.

Elective abortion: See *abortion*.

Embryo: The conceptus from fertilization until the end of the eighth week. See *fetus*.

Endocrine system: The endocrine glands (such as the thyroid and pituitary glands) and the hormones they secrete.

Endothelial cell: A type of cell lining the blood vessel wall that can trigger an immune response (and hence graft rejection). See *blood-brain barrier*.

Epilepsy: Disruption in the normal electrical activity of the brain, resulting in seizures; epilepsy is diagnosed if more than one seizure occurs and those seizures are due to central nervous system dysfunction.

Excitotoxin: A chemical substance (kainic acid, ibotenic acid, or quinolinic acid) that, when injected into the brain, kills nerve cells by overstimulating them.

Ex utero: Outside the uterus.

Fetus: In a legal context, the conceptus at all stages of development; in a Federal regulatory context, the conceptus after implantation; in a scientific context, the conceptus from the end of the eighth week to the moment of birth. Compare *embryo*.

Fibroblast: A connective tissue cell, found in the skin, that can be induced through genetic engineering to produce some chemicals (such as dopamine and nerve growth factor) found in the brain.

Ganglion, ganglia: Term for a group of neurons that are usually located outside the central nervous system. Compare *basal ganglia*.

Genetic engineering: Altering the genetic makeup of a cell.

Genetically engineered cell: A cell into which new genes have been inserted.

Germ cell: A reproductive (egg or sperm) cell or its precursors. Compare *somatic cell*.

Glial cell, glia: A basic cell type of the nervous system. Glial cells appear to perform support functions for neurons: namely, nutrition, insulation (through the production of myelin), and structural support. Compare *neuron*. See *astrocyte*, *microglia*, *oligodendrocyte*, *Schwann cell*.

Hippocampus: A nucleus in the brain crucial to learning and memory.

HIV, human immunodeficiency virus: The retrovirus associated with AIDS and AIDS-related complex. See *retrovirus*.

Huntington's disease: A genetic neurodegenerative disease caused by death of nerve cells in the striatum (producing abnormal movement) and elsewhere in the cerebral cortex (producing dementia). The cause of the nerve cell death is unknown.

Hypothalamus: A collection of nuclei in the brain that control such behaviors as eating and drinking and are involved in regulating the endocrine system. The hypothalamus also produces hormones itself. See *endocrine system*.

Immune response: Reaction of the immune system to foreign matter. See *immune system*.

Immune system: A collection of organs, tissues, cells, and molecules in mammals that seeks out, identifies, destroys, and remembers foreign organs, tissues, cells, and molecules; the immune system protects the animal

from disease-causing organisms in the environment. See *rejection*.

Immunological privilege: The concept that the central nervous system is not as closely monitored by the immune system as the rest of the body and is therefore less susceptible to graft rejection.

Immunoreactive: Capable of provoking a response from the immune system.

Immunosuppression: The use of drugs to prevent graft rejection by restraining the response of the immune system to foreign material.

Incidence: The number of new cases of a disorder occurring during a given period of time (usually 1 year) within a given geographical area. Compare *prevalence*.

Incidence rate: Incidence per unit of population. See *incidence*.

Induced abortion: See *abortion*.

Informed consent: As applied to human research, the agreement of a person (or his or her legally authorized representative) to serve as a research subject, in full knowledge of all anticipated risks and benefits of the experiment. Informed consent requires that the researcher impart to the prospective subject any information that might influence the subject's decision to participate or not participate in the research, including an explanation of the methodology to be used, the availability of alternative therapies, and the prospective subject's freedom to withdraw from the experiment at any time, without prejudice.

Institutionalize: To incorporate an act or practice into a structured, often formal, system. Compare *legitimate*.

Institutional Review Board, IRB: A group established by an institution conducting medical research to assess the legal, ethical, and scientific aspects of that research on human subjects. IRB approval is required by the Department of Health and Human Services before proposals can receive Federal funding. IRBs must review research protocols on a regular basis, but not less than once a year.

In utero: In the uterus.

Investigational device exemption: Application to FDA by a manufacturer for permission to ship a device prior to obtaining premarket approval, in order to conduct studies of safety and efficacy. See *premarket approval application*.

Investigational new drug application, IND: Request by a manufacturer for exemption from FDA's premarket approval requirement; an IND is sought for shipment of a drug for investigational use by qualified experts, in order to study the safety and efficacy of the drug.

In vitro: Literally, in glass; in the laboratory; outside the body.

In vivo: In the body.

Isograft: Tissue transplanted from one identical twin to another; isografts pose no problem of rejection by the identical twin who receives the graft.

Kindled model: An animal model of epilepsy that is thought to be analogous to temporal lobe epilepsy in humans. See *animal model*.

L-dopa, Levodopa: The precursor of the neurotransmitter dopamine. L-dopa is the standard therapy for persons with Parkinson's disease.

Legitimate: To give legal status to an actor practice; to show or affirm an act or practice to be justified. Compare *institutionalize*.

Limbic system: Structures in the brain that are associated with some aspects of emotion and behavior. See *hippocampus*, *hypothalamus*.

Locus ceruleus: A nucleus of the brain that inhibits the ability to induce seizures in the kindled model of epilepsy. See *kindled model*.

Lymphatic drainage: The movement of fluids, molecules, foreign particles, and cells from various tissues in the body through the lymph system to the immune system; a means by which grafted cells reach the host's immune system and trigger rejection.

MAO-B, monoamine oxidase B: An enzyme that breaks down certain neurotransmitters. It can also convert other chemicals to toxins that destroy substantial nigra cells, thereby producing parkinsonism. See *parkinsonism*.

Microglia: A type of glial cell in the central nervous system thought to enter the immune system and initiate graft rejection.

Migration: The movement of immature cells in the brain to the site where they will mature and remain permanently. Compare *differentiation*, *proliferation*.

Minimal risk: Term used to denote that the chance of harm anticipated in proposed research is no greater than that encountered in daily life or during the performance of routine physical or psychological tests.

Mortality rate: The number of deaths during a given period of time (usually 1 year), within a given geographical area, per unit of population.

Motor neuron disease: A type of neurodegenerative disease in which neurons in the central nervous system that control muscle movement are destroyed. See *amyotrophic lateral sclerosis*.

MPTP, 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine: A synthetic narcotic that can cause parkinsonism in humans.

Multiple sclerosis, MS: A demyelinating disease characterized by an array of symptoms (such as loss of coordination, slurred speech, and dizziness), depending on wherein the central nervous system the lesions occur. See *demyelination*.

Myelin: A fatty substance (of which the myelin sheath surrounding axons is made) that acts as an electrical insulator to speed the conduction of nerve impulses. Myelin is formed in the peripheral nervous system by Schwann cells and in the central nervous system by

oligodendrocytes. See *myelin sheath*, *oligodendrocyte*, *Schwann cell*.

Myelin sheath: Concentric layers of myelin surrounding the axons of some neurons. The myelin sheath speeds the conduction of electrical impulses. See *myelin*, *oligodendrocyte*, *Schwann cell*.

Nerve fiber: An axon and its surrounding myelin sheath.

Nerve growth factor, NGF: A protein that promotes axon growth in some areas of the peripheral nervous system and plays a role in the development of vertebrate sensory and autonomic systems. In the central nervous system, it appears to protect from damage some populations of cells that synthesize acetylcholine.

Nerve root: One of a collection of nerves that are attached to and demarcate the 30 segments of the spinal cord. Nerve fibers enter and leave the spinal cord at one of the 31 nerve roots. These fibers link the peripheral and central nervous systems, bringing sensory information from the body to the spinal cord and motor information from the spinal cord to the body. See *dorsal root*.

Neural grafting: The transplantation (implantation) of cells or tissue into the brain or spinal cord. As used in this report, it refers to various treatment goals (such as promotion of growth or provision of needed chemicals), materials (such as adrenal medulla or fetal central nervous system tissue) and methods (such as cell suspensions or cell lines) of grafting. See *cell line*, *cell suspension*.

Neuritic plaque: Abnormal cluster of degenerating neurons, other brain cells, and protein in the areas between neurons; found in the brains of persons with Alzheimer's disease.

Neurodegenerative disorder: A class of neurological disease marked by loss of a particular population or populations of nerve cells in the central nervous system. Symptoms vary and depend on the neurons lost. See, for example, *Parkinson's disease*, *Huntington's disease*, *Alzheimer's disease*, and *amyotrophic lateral sclerosis*.

Neurofibrillary tangle: Accumulation of twisted protein filaments inside nerve cells; found in the brains of persons with Alzheimer's disease.

Neurological disorder: Disease of, or injury to, the central nervous system.

Neuron, nerve cell: The basic functional unit of the nervous system. The neuron is typically composed of a relatively compact cell body containing the nucleus; several short, radiating extensions, or processes (dendrites); and one long process (the axon) with twig-like branches along its length and at its end. Information in the form of electrical impulses travels from the dendrites, through the cell body, and along the axon to other cells. Sensory neurons send information to the brain and spinal cord; motor neurons send instructions to muscles, organs, and glands. See *axon*, *dendrite*.

Neurotransmitter: Specialized chemical messenger (e.g., acetylcholine, dopamine, norepinephrine, serotonin) synthesized and secreted by neurons that sends a nerve impulse from one nerve cell to another. Neurotransmitters are released into the synaptic space between neurons, bind to the dendrites of other neurons, and initiate a message in those neurons. Some neurotransmitters stimulate the release of neurotransmitters from other neurons, while others inhibit the release of neurotransmitters from other neurons. Neurotransmitters are also released at synapses between neurons and other targets (e.g., muscles, glands). See *synapse*, *synaptic space*.

Neurotrophic factor: Chemical produced by some neurons and glial cells that affects the growth and development, maintenance of function, and response to injury of neurons. See *trophic factor*, *tropic factor*, and *nerve growth factor*.

New drug: A drug not generally recognized by qualified experts as safe and effective for use under the conditions prescribed, recommended, or suggested on the label, 01 which has been recognized as safe and effective but which has not been used to a material extent or for a material time.

New drug application, NDA: Submission by a manufacturer to the FDA of information on a new drug, including full reports of studies of safety and efficacy, specimens of proposed labelling, and methods of manufacture, processing, and packing. Approval of the NDA is required before a new drug can be introduced into commerce. See *investigational new drug application*.

Nontherapeutic abortion: See *abortion*.

Nontherapeutic research: Studies involving human subjects designed to further scientific knowledge about a disorder or process, with no anticipated direct benefit to the subjects themselves.

Norepinephrine: See *catecholamine*, *neurotransmitter*.

Nucleus, nuclei: A group of cells in the brain, but generally outside the cerebral cortex, that share the same anatomical region and to varying degrees the same function. The hippocampus, locus ceruleus, and substantia nigra are examples of nuclei.

Oligodendrocyte: A type of glial cell that forms myelin in the central nervous system; oligodendrocytes appear to inhibit the regrowth of damaged axons in the central nervous system. Compare *Schwann cell*; see *glial cell*, *myelin*, *myelin sheath*.

On-off phenomenon: In Parkinson's disease, alternating periods in which the patient's motor symptoms are under control (on) or severe and uncontrolled (off); the phenomenon occurs regardless of drug dosage.

Paraneuron: Cells that share a common heritage with cells in the nervous system. See *chromaffin cells*.

Paraplegia: Paralysis and loss of sensation from the waist down as a result of damage to the middle or lower

portions of the spinal cord.

Parkinsonism: A group of neurological disorders with various causes (e.g., drugs, toxic chemicals, brain tumors, and recurrent head injury). Symptoms include abnormally decreased motor activity, tremor, and rigidity. The most common type of parkinsonism is Parkinson's disease. See *Parkinson's disease*.

Parkinson's disease, idiopathic Parkinson's disease: A neurodegenerative disease caused by death of nerve cells in the substantia nigra and the resulting loss of dopamine in the brain; symptoms are tremor, slowing of movement, and rigidity. The cause of the nerve cell death is unknown. Compare *parkinsonism*.

Peripheral nervous system, PNS: One of the two major divisions of the nervous system, made up of the nerves and ganglia outside the brain and spinal cord. Nerves in the peripheral nervous system connect the central nervous system and sensory organs, other organs, blood vessels, glands, and muscles. Compare *central nervous system*.

Precursor cell: An undifferentiated embryonic cell that may develop into one or another type of mature cell. See *differentiation*.

Premarket approval application, PMA: Application required by the FDA for certain devices; this application demonstrating safety and efficacy must be submitted to and approved by the FDA before the device can be introduced to the market.

Prevalence: Total number of cases of a disorder in existence at any given time in a given area. Compare *incidence*.

Prevalence rate: Prevalence per unit of population.

Primary cell culture: Cells taken directly from an organism and grown in vitro; most replicate a fixed number of times or not at all. Compare *continuous cell line*.

Proliferation: The reproduction or multiplication of similar forms of brain cells; the stage of development preceding migration and differentiation. Compare *differentiation*, *migration*.

Protocol, research protocol: A complete description of a proposed scientific experiment.

Quadriplegic: Paralysis and loss of sensation from the shoulders down as a result of damage to the upper spinal cord.

Regeneration: Regrowth of tissue. In the nervous system, regeneration often refers to regrowth of a damaged axon. See *axon*.

Rejection, graft rejection: The destruction by the immune system of foreign tissue; specifically, destruction of foreign tissue transplanted into a recipient's body from a donor's body.

Replication: The process of duplicating or reproducing itself, as cells. Compare *proliferation*.

Retrograde cell death: The killing, due to axonal damage, of neurons located some distance away from

the site of an injury in the central nervous system.

Retrovirus: Any of a group of RNA-containing viruses that produce reverse transcriptase, which catalyzes the production of DNA using the virus's RNA as a template; the DNA is incorporated into the genome of the infected cells. The AIDS virus is a retrovirus, as are many infection- and tumor-producing viruses.

Risk-benefit analysis: A determination of whether the risks to health of using a drug or procedure exceed the therapeutic and quality-of-life benefits that accrue from its use.

Schwann cell: A glial cell in the peripheral nervous system that produces myelin for the myelin sheath surrounding axons. Schwann cells also support regrowth of the axons of peripheral nerves. Compare *oligodendrocyte*; see *myelin*, *myelin sheath*.

Solid tissue graft: A piece of tissue placed into the brain or spinal cord; such tissue contains more than one type of cell and therefore may be more likely than a cell suspension to provoke an immune response. See *endothelial cell*; compare *cell suspension*.

Somatic cell: Any cell in the body except reproductive cells and their precursors. Compare *germ cell*.

Spinal cord: A component of the central nervous system, the spinal cord is a core of neuronal cell bodies surrounded by axons that extends from the bottom of the brain down the spinal column. The spinal cord is divided into 30 segments. See *brain*, *central nervous system*.

Spontaneous abortion: See *abortion*.

Standard therapy: Procedures no longer regulated as research.

Stereotactic surgery: A type of brain surgery; specifically, the implantation of tissue into the brain by means of a needle inserted through a small hole in the skull.

Striatum, corpus striatum: Part of the basal ganglia located in the upper part of the brain; the striatum receives dopamine from cells in the substantia nigra. See *substantia nigra*.

Stroke: A sudden interruption of normal blood flow to the brain, caused by blockage or rupture of a blood vessel,

that may result in a wide range of neurological deficits (such as coma, paralysis, or inability to speak), depending on wherein the brain the lesion occurred.

Substantia nigra: A nucleus in the brain; neurons in the substantia nigra produce dopamine and send their axons to the striatum. The cells of the substantia nigra degenerate in Parkinson's disease. See *striatum*, *Parkinson's disease*.

Synapse: The site at which an impulse is transmitted from the axon of one nerve cell to the dendrite of another nerve cell, typically by a neurotransmitter. See *neurotransmitter*.

Synaptic space: A narrow gap between two adjacent neurons into which neurotransmitters are secreted. See *neurotransmitter*, *synapse*.

Synaptic sprouting: A process of limited regrowth following damage to the central nervous system whereby fibers from nearby, undamaged axons form new branches and establish new synapses to replace some of the lost ones.

Thalamus: A collection of nuclei in the brain that are involved in analyzing sensory and motor information.

Therapeutic research: Studies involving human subjects that are designed to cure or palliate a disorder existing in those subjects.

Trophic factor: A chemical that promotes the growth of axons and the survival of neurons.

Tropic factor: A chemical that provides a surface or substrate for axon growth and guides the axon toward its target.

Upper brain: The portion of the brain between the cerebral cortex and the brain stem. See *brain stem*, *cerebral cortex*.

Vector: Transmitter of disease.

Ventricle: Cavity in the brain that contains cerebrospinal fluid. See *cerebrospinal fluid*.

Viable: Capable of living; specifically, a fetus capable of living outside the womb.

Xenograft: Tissue transplanted from one species to another.