

AXOLOTL NEWSLETTERS 1-15

SUBJECT INDEX

A

- abnormal cleavage gene (cl),
discovery/origin, 1:5, 7; colony stock, 1:13
- a gene,
See "albino gene (a)"
- acetylcholine, 1:9
- actin, 1:9; 5:5; 4:20-21
- albino gene (a),
discovery/origin, 1:6,7; 3:1-2; colony stock,
1:14; 6:7, 8, 10, 11, 12, 13; 8:1-2; 9:22; 11:5; 13:2, 36;
tubulin in, 4:25; pigment pattern, 14:1; melanophores in,
14:2; tyrosinase and, 14:2; xanthophore and iridophore
development, 14:2
- alcohol dehydrogenase, 2:14; 4:16; 5:3
- allopurinol, 4:11; 14:2-3
- Alytes, 13:46
- Ambystoma jeffersonianum, 1:3
- Ambystoma maculatum, 1:3; 9:10
- Ambystoma opacum, 5:8
- Ambystoma punctatum, 7:2-6, 13
- Ambystoma recipes, 8:24
- Ambystoma texanum, 2:14; 4:16; 5:3; 11:24-25; 13:38-40
- Ambystoma tigrinum, 1:3, 7; 3:1; 11:27; 13:16
- amphibia,
suppliers,
Animals of Distinction, 6:18; The Shed, 6:18;
Zoological Imports and Products, Inc., 6:18; The
Amphibian Facility, 6:20-26; various, 6:supplement;
Central Valley Biologicals, 12:18; 14:22; Amphibian
Biotech, Inc., 12:20-22; 13:54; Xenopus I, 13:50
water quality and, 13:38-43; pigmentation, 14:1; anesthesia,
14:19-21; "fast frogs", 14:23-25
- an gene,
See "anemic gene (an)"
- anatomy,
axial designations of limbs, 11:6-7
- anemic gene (an),
colony stock, 1:13; 6:10; 8:1-2; metamorphosis and, 4:26;
5:6; thyroxine and, 4:26

- anesthesia,
benzocaine, 14:19-21; MS222, 9:26; 11:8-9
- antibiotics,
See also "treatments, antibiotics, and preventive measures
for disease in axolotls"; for surgery, 3:15; gentamicin
supplier, 3:16; for cell culture, 15:8
- antimycotics,
for cell culture, 15:8
- Anurans,
See "amphibia"
- aquaria, 9:30, 35; 13:31
See also "housing for axolotls"
- artificial fertilization, 10:1-4; 13:28-29;
of Xenopus, 2:7; productivity, 13:27
- as gene,
See "ascites gene (as)"
- ascites gene (as),
discovery/origin, 1:6; colony stock, 1:13; 6:7; 8:1-2; 15:5
- ax gene,
See "axanthic gene (ax)"
- axanthic gene (ax),
colony stock, 1:14; 6:7, 10, 11; 8:1-2; 11:5; 13:2; 13:36;
pigment pattern, 14:1-2; virus and, 14:2

B

- b gene,
See "Brandon lethal (b)"
- benzocaine, 14:19-21
- bibliography, 1:11-12; 6:1-6; 7:33; 8:3-23; 9:36; 12:30
- blastopore, 10:8-9
- Brandon lethal (b),
discovery/origin, 1:6; colony stock, 1:14; 8:1-2
- breeding,
See "spawning"
- brine shrimp,
See also "food for axolotls"; hatcheries, 3:17; 4:3-4

C

- c gene,
See "cardiac non-function gene (c)"
- c-2 gene,
See "cardiac-2 gene (c-2)"
- cardiac non-function gene (c),
discovery/origin, 1:5; acetylcholine and, 1:9; actin and,
1:9; 4:20, 21; 5:5; electrophysiology, 1:9; myofibrils and,

1:9; 4:20, 21; myosin and, 1:9; 4:20, 21; 5:5; transplants, 1:9; 4:19, 20; ultrastructure of heart cells, 1:9; colony stock, 1:13; 6:10; 8:1-2; 11:5; 12:1; 13:2; 13:36; 15:5; organ culture, 4:19; morphology, 4:20; sarcomere organization, 4:20; heart induction, 5:5, 6; ion imbalance and, 5:6; strain background, 5:7-11

cardiac-2 gene (c-2),
colony stock, 11:5; 12:1; 13:2; origin/discovery, 13:11-14

cardiovascular system of the axolotl, 1:9;
See also "cardiac gene (c)"

care, general axolotl,
See "husbandry of axolotls," "water and axolotls," "housing for axolotls," and "food for axolotls"

CGT,
See "HCG"

chloramines, 13:37

chondroitin sulfate, 15:8-11

chorionic gonadotrophin,
See "HCG"

chromatophores, 4:11;
differentiation of, 14:1-3; 15:7-11

cl gene,
See "abnormal cleavage gene (cl)"

colonies, axolotl,
Wistar Institute (Morris Biological Farm), 1:13; University of Buffalo-Humphrey, 1:3-4; Indiana University-Humphrey, 1:3-8; -Malacinski, 11:3-5; 12:1; 13:2-3; Ithaca College-DeLanney, 1:5; Hubrecht Laboratory, Utrecht, The Netherlands-Verhoeff de Fremery, 1:5; 6:13; University of Ottawa-Armstrong, 6:7; 13:32-35; 13:36; Université Paul-Sabatier-Beetschen, 6:7-8; Jackson Laboratory, Bar Harbor, Maine-DeLanney, 6:8; Indiana University of Pennsylvania-Forbes, 6:9; Stephens College, Missouri-Hoerter, 6:9; University of Texas at Austin-Jacobson, 6:9; Arizona State University-Justus, 6:10; Institute of Zoology, Uppsala, Sweden-Löfberg, 6:10; Albert Einstein College of Medicine, New York-Model, 6:11; University of Umea, Sweden-Nelson, 6:11; -Løvtrup, 15:17-19; University of Helsinki, Finland-Peräsalo, 6:11; University of Caen, France-Signoret, 6:12; Mill Hill Laboratory, London-Slack, 6:12; University of Illinois, Urbana-Stocum, 6:13; Crawley College of Technology, Sussex, England-Thomas, 6:13; Seoul National University, South Korea-Chung, 6:14; University of Birmingham, United Kingdom-Wallace, 6:14; -Waldorf, 11:10-11; Université Libre de Bruxelles, Belgium-Brachet, 7:32; University of Michigan-Carlson, 7:32; Fairleigh Dickinson University-Schreckenber, 7:32; Central Valley Biologicals,

12:18; 13:49; Amphibian BioTech Inc., 12:20; 13:51

D

d gene,
See "white gene (d)"

Deoxynucleotides, 10:18-21

deoxyribonucleic acid,
See DNA

diagnostic services, 11:23

differentiation,
and pigmentation, 14:1-3; 15:7-11

disease and disease organisms,
See also "disease symptoms"

Acinetobacter, 12:12; 13:16

Actinomyces, 3:11, 13

Aeromonas, 3:11, 13; 9:2, 3, 5, 8, 9; 11:20, 22; 12:13; 15:3

Alcaligenes, 9:5, 9

ammonia poisoning, 9:31

Aspergillus versicolor, 9:32

bacterial enteritis, 11:28

blister disease, 3:12

Chlamydia, 11:20, 22

Dermocystidium, 9:5, 13

diagnostic services, 11:23

encephalitis, 9:7

epidermal hypertrophy disease, 9:10

Escherichia coli, 9:8

fungus, 3:11, 14; 9:18, 34, 35; 11:20, 22

gram positive coccus/bacillus, 9:5, 12

heavy metal poisoning, 9:17

leeches, 11:27

Mimeia, 9:5, 9

molds, 3:11, 14;
See also fungus

mycoplasmas, 11:20, 22

necrotizing hepatitis, 9:17

nematodes, 11:28

nitrate poisoning, 9:31

peritonitis, 11:28

Proteus, 9:3

Pseudomonas, 3:12, 13, 14; 9:3, 5, 8, 9, 32; 12:12

raised epidermal ridge disease, 9:9; 11:19-23

red-leg, 9:3; 11:10-11, 28, 29; 12:13

Salmonella, 3:12, 13; 9:5, 7, 19

Saprolegnia, 9:20

Shigella, 3:12, 13

splenic lymphoid necrosis, 9:17
 trematodes, 11:28
Trichosporon, 9:7
Vibrio, 9:3, 5, 9
 viral, 11:20, 21
Vorticella, 3:11; 7:25
 disease symptoms,
 abnormalities of the liver or spleen, 9:15, 29;
 pale, gray, or discolored, 9:2, 16, 18; 11:20, 22;
 surface petechiae, 9:2; enlargement, 7:8, 16, 18;
 nodules, 9:16; necrosis, fibrosis, 9:17; hemorrhaged,
 11:20; edemacious, 11:20
 abnormalities of the skin or epidermis,
 ulceration of abdominal epidermis, 3:12; deterioration
 of skin, 9:5; 11:24; raised epidermal ridges, 9:5, 9;
 hypertrophy of epidermis, 9:5, 10; pustules, 9:5, 13;
 mucous on skin, 9:5; 11:24; inflammation, 9:31, 32;
 cloudiness, 9:31; white or gray epidermal lesion,
 11:20; "bread mold" on body, 11:28; ulcerations, 11:29;
 subcutaneous swellings, 12:12
 anemia, 9:5, 7, 8, 16; 12:12, 13
 anorexia, 3:12; 9:2, 5, 9, 16; 15:18
 ascites, 9:2, 16
 biliary hyperplasia, 9:17
 bleeding, hemorrhage, or reddening, 9:2; 11:29; 12:13
 diffuse redness over entire body, 3:11; red splotches
 on body, 3:11; reddening of subcutaneous tissue, 9:2,
 5; splotches of blood on tailfin, 9:12; subcutaneous
 hemorrhage, 9:19; abnormal blood/vascular system, 9:29;
 hemorrhaged liver, 11:20; internal hemorrhaging, 11:24;
 red throats, 11:27, 29; hemorrhages on back legs and
 feet, abdomen, dorsal thorax, and ventral mandibular
 area, 12:12; superficial, 15:18
 corneal cloudiness/cloudy eyes/protruding eyes, 9:19; 11:24
 curled tail, 9:35
 diarrhea, 3:12; 11:10-11
 edema, 9:2, 5, 8; 12:13
 edematous cloaca, 9:8; 11:10-11; edemacious spleen,
 11:20
 fluid-filled swelling on top of head, 3:12
 gills overgrown by fungi, 15:17
 hunchbacks/arched backs/curved spine, 9:14, 35; 15:18
 inflammation or enlargement,
 of internal organs, 9:5, 8; enlarged spleen, 9:8, 16;
 enlarged liver, 9:16, 18; enlarged kidney, 9:18
 muscle spasms, 15:18
 prolapse of bowel, 11:10-11

rapid gulping of air, 11:24
 regeneration abnormalities, 9:5, 10
 rotting, destruction, or deterioration,
 of tailtip, 9:5, 12; of digits, 9:5:12; of skin, 9:5;
 11:24; of gills 9:31; 11:20, 24
 sluggishness/listlessness/lethargy, 3:12; 9:2, 5, 35; 11:27
 stunting/slow growth, 9:9, 14; 11:24
 sudden death, 9:18
 swelling around vent, 11:10-11
 swimming in circles, 9:7
 swimming on backs, 11:27
 weight loss, 9:5
 DNA,
 ribosomal, 2:11-13, 3:4; injection of, 3:3; 5S, 3:4
Drosophila,
 ribosomal DNA structure, 2:11-13; 3:4; germ plasm, 2:17;
 polar granules, 2:17; 3:7; germ cells, 3:7; nuclear
 transplantation, 3:7; induction of mutations in, 11:8-9
 E
 e gene,
 See "eyeless gene (e)"
 epigenesis, 10:15
 esterase, 13:4-10, 36
 estradiol, 11:12-18
 ethylmethanesulfonate, 4:10
 euthanasia, 9:26
 extracellular matrix and neural crest cell migration, 14:12-13;
 15:7-11
 eye abnormalities,
 See also "eyeless gene (e)"; one eye large and
 nonfunctional, 9:14
 eyeless gene (e),
 discovery/origin, 1:8; colony stock, 1:13, 7:23; 8:1-2;
 9:22; 11:5; 12:1; 15:5; embryonic induction, 4:13; 5:4; and
 gene r, 4:15; 5:4; and gene x, 4:15; and mesenchyme, 4:15;
 5:4; and parabiosis, 4:15; and pigmentation, 4:15; and
 sterility, 4:15
 F
 f gene,
 See "fluid imbalance gene (f)"
 fast developing frogs, 14:23-25
 fluid imbalance gene (f),
 discovery/origin, 1:4-5, 8; and g, 1:4-5; colony stock, 1:13;

6:11; 8:1-2; 11:5
 follicle stimulating hormone,
 See FSH
 food for axolotls,
 alfalfa sprouts, 11:31
Artemia salina, 9:33
 axolotl cookies, 3:14
 axolotl eggs, 3:10
 axolotl larvae, 11:31
 brine shrimp, 3:10; 4:3-4; 9:14, 23
 supplier, 3:16
 hatchery, 3:17; 4:3-4
 chow, 3:10
 crickets, 12:23-29
 daphnia, 9:33; 11:10-11, 31; 13:26
 diet supplements, 3:14
 earthworms, 3:10; 9:21, 22-23
 for larvae, 3:10; 9:14, 23, 33
 for juveniles, 3:10; 9:14, 21
 for adults, 3:10, 9:14, 21-22, 33
 feeding methods, 11:30-31
 frequency, 6:11; 9:26, 33
 Gainesburgers, 3:10
 heart, 9:33; 10:5; 13:26
 beef, 3:10; 9:26
 live food, 9:16
 liver, 9:30, 33; 10:5; 11:31; 13:26
 beef, 3:10; 6:11; 7:23; 9:14; desiccated, 3:16
 locust hoppers, 11:10-11
Lumbricus variegatus, 12:21; 13:26
 mealworms, 11:10-11
 meat, 9:33
 mosquito larvae, 11:10-11
 powdered nettle leaves, 3:16
Rana pipiens tadpoles, 3:10
 synthetic, 3:14; 11:31
 tofu, 11:31
 tubifex, 11:10-11; 12:21; 13:26
 vitamins, 9:16, 26
Xenopus larvae, 3:10
 FSH,
 supplier, 3:16; spawning induction with, 4:10; 13:27, 32-33;
 for artificial fertilization, 10:1-4; 13:29

G

g gene,

See "gill lethal gene (g)"
 gene amplification, 2:9
 gene expression in interspecific hybrids, 5:3
 gene list, 1:13-14; 11:5
 gene mapping, 15:13-14
 gene markers, 2:14; 13:4-9, 36
 gene regulation, 2:14; 4:16
 germ cells, 2:17; 3:7
 germinal vesicle, 2:16; 4:12
 gill lethal gene (g),
 and gene f, 1:4-5; discovery/origin, 1:4-5, 8; colony stock,
 1:14; 8:1-2; 11:5
 glycosaminoglycan, 15:8-11
 grafts, 3:2, 6; 4:13, 23; 5:4; 14:11-18
 gray crescent, 10:7, 11
 guanine, 14:3
 guanosine, 14:3
 gynogenesis, 15:12-16

H

h gene,

See "hand lethal gene (h)"
 hand lethal gene (h),
 discovery/origin, 1:6; colony stock, 1:14; 6:10
 haploidy, 5:5
 HCG,
 for inducing spawnings, 10:1-4; and artificial
 fertilization, 13:30
 herpetofauna supplier, 12:18
 histocompatibility,
 groups, 1:15; and allografts of skin or limbs, 4:14
 histological methods, 11:32; 12:2-7; 13:55
 histology of the brain, 9:15
 Holtfreter's solution, 3:9; 7:23; 9:30;
 preparation of, 3:15; in disease treatment, 3:11; 9:11, 18,
 29; See also "increased salt" under "treatments,
 antibiotics, and preventive measures for disease in axolotls"
 hypothalamus, 4:15
 hormones, 3:16; 4:10; 10:1-4; 13:27, 29, 30, 32-33, 49;
 See also specific hormone
 housing for axolotls,
 See also "water and axolotls" and "husbandry of axolotls";
 for developing embryos and larvae, 3:9-10; 9:23, 30, 33; in
 individual bowls, 3:9-10; 9:23, 28, 33, 35; 13:26; bowl
 supplier, 3:16; in aquaria, 7:23; 9:21, 30, 35; 10:5; 13:26,
 28, 31; in asbestos cement tanks, 9:26; in holding tanks,

9:28; in plastic, 9:28, 32, 33; 11:10-11; 13:31; leaching of plasticizers from plastic, 9:32; in polystyrene tanks, 11:10-11; in failsafe aquaria, 13:31

husbandry of axolotls,
See also "water and axolotls," "food for axolotls," and "housing for axolotls"; care for eggs, hatchlings and young larvae, 3:9-10; cleaning of containers, 3:10; 9:26; 11:11; temperature, 3:9; 6:11; 9:26, 28, 34; 13:26, 28; photoperiod, 6:11; 9:26, 28; 10:5; 13:26, 28; illumination, 9:26

hyaluronate, 15:8-11

I

identification, 9:22; 13:30

immune system, 5:5

immunogenetics, 4:14

inbreeding coefficient, 15:12-16

inbreeding depression, 15:12-16

innervation of muscles, 14:5-9

ir gene, 8:1-2

iridophore, 4:11; 6:10; 14:1-3

isozymes, 13:4-10

L

l gene,
See "london lethal gene (l)"

lactate dehydrogenase,
and initiation of heartbeat, 1:9; as genetic marker, 2:14; 4:16; 5:3; 13:4

lampbrush chromosomes, 2:15; 3:5-6

LH,
for artificial fertilization, 10:1-4; 13:30; for induced spawnings, 13:27, 32-33

limb, 11:6-7;
See also "regeneration"

london lethal gene (l),
discovery/origin, 1:6, 8; colony stock, 1:14; 8:1-2; 15:5

LRF agonist, 13:49

luteinizing hormone,
See "LH"

M

m gene,
See "melanoid gene (m)"

malate dehydrogenase, 13:4

maternal effect genes,
See specific gene (o, v, f, cl, or nc); in Pleurodeles, 6:7

Mauthner's cells, 4:24; 5:5

meeting announcements, 2:4; 3:18; 4:5; 12:14; 13:45; 14:27, 28

melanin, 4:11

melanoid gene (m),
possible early variant, 1:3; discovery/origin, 1:5; colony stock, 1:14; 6:7, 11; 8:1-2; 9:22; 11:5; 13:2; 13:36; and eumelanin, 4:11; phenocopy production, 4:11; 14:2-3; and xanthine dehydrogenase (XDH), 4:11; 14:3; pigment pattern, 14:1; guanosine and, 14:3; virus and, 14:3; position on chromosome, 15:14

melanophore, 4:11; 6:10; 14:1-3, 15; 15:7-11

Melanophore Stimulating Hormone, 4:15

mesenchyme, 4:15; 5:4

metamorphosis, 1:3, 4, 7; 9:14;
hemoglobins and, 1:9; 4:26; and Mauthner's cells, 4:24; genetic basis, 4:26; urea excretion, 4:26; and an gene, 4:26; 5:6; thyroid and thyroxene, 4:26; 5:6; cryptic, 5:6; of A. tigrinum, 11:27; and water flow, 13:49; and pigment changes, 14:1

methylmethanesulfone, 4:10

mi gene,
See "microphthalmic gene (mi)"

micro gene (microphthalmia), 1:13

microphthalmic gene (mi),
discovery/origin, 1:6, 7; colony stock, 1:13; 6:12; 8:1-2; 11:5; 15:5

migration,
neural crest cell, 14:10-21; 15:7-11

molecular hybridization, 3:3

MS222, 9:26; 14:19;
mutagenesis and, 11:8-9

muscle innervation, 14:5-9

mutations,
See also specific genes; categories, 1:13-14; 4:22; chemical induction of, 4:10; 5:6; albinism, 4:11; in other amphibia, 4:23; 6:7; in Pleurodeles, 6:7; double homozygous recessives, 5:2

myoblasts, 14:8

myofibrils, 1:9; 4:20-21

myosin, 1:9; 4:20-21; 5:5

N

n1, n2, n3, n4, n5

See "nucleolar mutations"

nc gene,

See "no cleavage gene (nc)"

neoteny, 1:3, 7; 4:26

neural crest cell migration, 14:10-21; 15:7-11

neurogenesis, 14:5-9;

and eye development, 3:6-7; 4:17; 5:4; and sp gene, 4:18

no cleavage gene (nc),

discovery/origin, 1:7; colony stock, 1:13; tubulin in, 2:19; 4:25; 5:3

norepinephrine, 1:9

Notophthalmus,

axial designations of limbs, 11:6-7

nuclear transplantation, 2:14, 16; 3:1-2, 3, 7; 4:12, 16; 5:2, 3

nucleolar mutations (nl-n5),

discovery/origin, 1:8; colony stock, 1:13; rRNA cistrons and, 5:3

nucleolar organizer region, 2:11-13; 3:4

O

o gene,

See "ova deficient gene (o)"

ova deficient gene (o),

origin/discovery, 1:4, 7; 5:17-18; colony stock, 1:13; correction by injection, 4:12; 5:2, 18; and limb regeneration, 5:17

P

p gene,

See "premature death gene (p)"

parabiosis,

in cardiac animals, 1:9; and e gene, 4:15; and cell lethal genes, 4:23

ph gene,

See "phocomelia gene (ph)"

phocomelia gene (ph),

discovery/origin, 1:6; colony stock, 1:13; 6:7

phosphoglucomutase, 13:4, 36

photography of embryos, 12:8-11

pi gene,

See "pinhead gene (pi)"

pigmentation,

and e gene, 4:15; biochemical bases of mutations, 5:5; and age of animal, 14:1; variability in wild-type, 14:2; migration of chromatophores, 14:14-15

pinhead gene (pi), 15:5, 20-22, 23-24

plasmid technique, 3:4

Pleurodeles,

supplier, See "amphibia suppliers"; sex determination, 1:4; gene expression in oocytes, 2:16; 3:3; colony stock, 6:7, 12; disease in, 9:13; anesthesia for, 14:19

polar granules, 2:17; 3:7

polarity of the amphibian embryo, 10:6-35

polydactyly, 12:17

polyploidy,

studies by Humphrey and Fankhauser, 1:4; and Mauthner's cells, 5:5

premature death gene (p),

discovery/origin, 1:5; colony stock, 1:13; 6:7; 8:1-2; 13:36

primary embryonic axis, 2:18; 3:6

primary embryonic organizer, 2:18; 3:6

protein synthesis, 2:14; 3:3

pteridine, 4:11; 14:1-3; 15:8

purines, 4:11; 14:3

Q

q gene,

See "quivering lethal gene (q)"

quivering lethal gene (q),

discovery/origin, 1:5, 6, 7; colony stock, 1:13

R

r gene,

See "renal insufficiency gene (r)"

Rana pipiens, 2:7; 3:10; 5:12; 6:16; 13:38-41

Rana temporaria, 6:12

rapidly developing frogs, 14:23-25

regeneration,

stages in limb, 2:2-3; of limbs in o mutant, 5:17; of lateral line sense organs, 11:11; innervation of limb muscles, 14:5-9

renal insufficiency gene (r),

discovery/origin, 1:8; colony stock, 1:14; 6:7; 8:1-2; 11:5; 13:2; and gene e, 4:15; 5:4

reproductive capacities, 7:23-24; 10:5; 13:21-25, 26-27, 32-35

See also "spawning"

restriction patterns, 3:4

ribonucleic acid,

See "RNA"

RNA,