

o. Records Request
: 18 YERKES

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I TITLE: Spectrum of disease in macaque monkeys chronically infected with IV/SMM.

U AUTHOR(S): McClure-HM; Anderson-DC; Fultz-PN; Ansari-AA; Lockwood-E; Rodie-A

O SOURCE (BIBLIOGRAPHIC CITATION): Vet-Immunol-Immunopathol. 1989 May; 21(1): 3-24

SSN INTERNATIONAL STANDARD SERIAL NUMBER: 0165-2427

A LANGUAGE OF ARTICLE: ENGLISH

B ABSTRACT: Twelve rhesus and one pig-tailed macaque have been monitored for 8-41 months following experimental infection with 10(4) TCID of SIV/SMM. Twelve of the 13 animals became virus positive and seroconverted within 3 to 6 weeks of exposure; the remaining animal seroconverted at 6 months, but has remained virus negative. Six of the 13 animals (46%) died between 14 and 28 months post-infection, following prolonged clinical disease characterized by chronic diarrhea and weight loss, peripheral lymphadenopathy and hemogram abnormalities. Histologic findings ranged from prominent follicular hyperplasia to severe lymphoid depletion, with lymphoid tissues often showing an infiltrate of syncytial giant cells. One animal had intestinal cryptosporidiosis and two had brain lesions comparable to those seen in AIDS encephalopathy in humans. Three of the remaining seven animals have an ARC-like disease and are showing gradual deterioration of their clinical condition. These animals, as well as animals that died, had progressive decreases in CD4+ cells and CD4+/CD8+ cell ratios. These observations further document the marked clinical, pathologic and immunologic similarities between human AIDS and the SIV-infected macaque model.

N CONTRACT OR GRANT NUMBERS: RR00165

N MEDLINE ACCESSION NUMBER: 89370216

2 of 18

I TITLE: The biology and immunopathology of simian immunodeficiency virus infection.

U AUTHOR(S): Fultz-PN; Anderson-DC

O SOURCE (BIBLIOGRAPHIC CITATION): Curr-Opin-Immunol. 1989-90 Feb; 2(3): 33-8

SSN INTERNATIONAL STANDARD SERIAL NUMBER: 0952-7915

A LANGUAGE OF ARTICLE: ENGLISH

N CONTRACT OR GRANT NUMBERS: RR00165

N MEDLINE ACCESSION NUMBER: 90234250

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I TITLE: Postnatal development of neuropeptide Y-like immunoreactivity in area 17 of normal and visually deprived rhesus monkeys.

U AUTHOR(S): Tigges-M; Tigges-J; McDonald-JK; Slattery-M; Fernandes-A

O SOURCE (BIBLIOGRAPHIC CITATION): Vis-Neurosci. 1989; 2(3): 315-28

SSN INTERNATIONAL STANDARD SERIAL NUMBER: 0952-5238

A LANGUAGE OF ARTICLE: ENGLISH

B ABSTRACT: Immunocytochemical methods were used to examine neuropeptide Y (NPY) immunoreactive neurons and fibers in area 17 of rhesus monkeys during the first year of life. NPY-immunoreactive (+) neurons are nonpyramidal cells which are either multipolar, bipolar, or bitufted in shape. They occur most

frequently in layer 6 and the subjacent white matter, are sparser in the supragranular layers, and absent from layer 4C. Labeled somata in the supragranular layers are smaller compared to those in layer 6 and the white matter. A typical axon originates from the NPY+ soma or from a primary dendrite and frequently is varicose. Distribution and morphologies of NPY+ neurons in area 17 of infants are similar to those of adult monkeys. Thus, it seems that NPY+ neurons in rhesus monkeys are mature from birth. NPY+ fibers occur in area 17 from birth; however, they differ in density and distribution from those of older infant and adult monkeys. At birth, a prominent fiber plexus is found in the deepest part of layer 1, and another in the white matter. Immunoreactive processes are sparse in the remaining cortical gray, except for some vertical fibers extending from pia to white matter. By 4 months of age, labeled fibers form a coarse network in layers 2, 3, 5, and 6. In addition, a distinct plexus extends through layers 4B, 4A, and the lowest aspect of layer 3. Also, a thin immunoreactive fiber band is found at the bottom of layer 4C. In the remainder of layer 4C, NPY+ fibers are scant. The supragranular layers also exhibit a unique immunoreactive "snarl" of fibers. Increases in density of NPY+ processes in the older infants are gradual so that between 7 and 13 months of age, NPY+ fibers appear to have achieved adultlike densities. These observations indicate that NPY+ fibers in area 17 of newborn rhesus monkeys undergo postnatal maturation which reaches a plateau around 4 months of age. After monocular visual deprivation from birth to 4 months of age, either by eyelid suture or by occlusion with an opaque contact lens, density and distribution of NPY+ neurons and fibers, including snarls, appear similar to those of age-matched undeprived infants. Thus, disruption of the normal binocular input does not seem to arrest the maturation of the NPY system in area 17 of rhesus monkeys during a sensitive period of early postnatal development.

✓ CONTRACT OR GRANT NUMBERS: EY06001; HD19731; HD00727

✓ MEDLINE ACCESSION NUMBER: 91137426

4 of 18

I. TITLE: Nonhuman primates and the acquired immunodeficiency syndrome: a question of necessity.

J. AUTHOR(S): Fultz-PN

J. SOURCE (BIBLIOGRAPHIC CITATION): J-Med-Primatol. 1989; 18(2): 73-83

ISSN INTERNATIONAL STANDARD SERIAL NUMBER: 0047-2565

A. LANGUAGE OF ARTICLE: ENGLISH

B. ABSTRACT: Because of the close phylogenetic relationship, nonhuman primates are highly susceptible to human pathogens, including infection of chimpanzees by the human immunodeficiency virus (HIV), the causative agent of AIDS. This, and the existence of a highly related simian virus, SIV, which causes an AIDS-like disease in macaques, emphasizes the continued importance of using nonhuman primates as model systems for identifying and developing prophylaxis and therapy for infectious agents and, in particular, for fighting the pandemic AIDS.

✓ CONTRACT OR GRANT NUMBERS: RR00165

✓ MEDLINE ACCESSION NUMBER: 89236373

5 of 18

I. TITLE: Phenotypic and functional differences in NK and LAK cells in the peripheral blood of sooty mangabeys and rhesus macaques.

J. AUTHOR(S): Powell-JD; McClure-HM; Anderson-D; Fultz-PN; Sell-KW; Ahmed-Ansari-A

J. SOURCE (BIBLIOGRAPHIC CITATION): Cell-Immunol. 1989 Nov; 124(1): 107-18

ISSN INTERNATIONAL STANDARD SERIAL NUMBER: 0008-8749

A LANGUAGE OF ARTICLE: ENGLISH

B ABSTRACT: Greater than 75% of the sooty mangabey monkeys at the Yerkes Regional Primate Research Center are naturally infected with SIV without any apparent clinical symptomology. On the other hand, experimental infection of rhesus macaques with SIV results in a clinical syndrome similar to human AIDS. These differences with regard to SIV infection prompted us to examine the natural immunosurveillance system of peripheral blood mononuclear cells (PBMC) from SIV-infected and uninfected monkeys of these two species. Phenotypic and functional studies of precursor and effector NK and LAK cells in the PBMC from these two species were carried out using monoclonal reagents, flow microfluorometry (FMF), and the standard in vitro ⁵¹Cr release assay against prototypic K562 (NK sensitive) and RAJI (NK resistant, LAK susceptible) target cell lines. Data indicate that both NK and LAK cell activities in the PBMC of sooty mangabeys were significantly (P less than 0.01) greater than those in rhesus macaques. The predominant NK effector cells and LAK cell precursors were shown to be Leu 19-CD8+ in the PBMC of sooty mangabeys and Leu19+ CD8- in the PBMC of rhesus macaques as determined by panning depletion techniques and FMF analysis. On the other hand, the predominant LAK effector cells were found to be dual marked Leu 19+ CD8+ in rhesus macaques and Leu 19- CD8+ in sooty mangabeys. These qualitative and quantitative differences were not due to SIV infection of these two species since PBMC from both SIV-seropositive and virus-positive and SIV-sero-negative and virus-negative monkeys gave similar results. Moreover, of importance is the finding that the functional NK and LAK precursor cells are CD8+ and CD8- in sooty mangabeys and rhesus macaques, respectively. These data may have implications for the natural SIV/SMM virus-positive asymptomatic state of sooty mangabeys and may provide useful tools for tracing the ontogeny and lineage derivation of NK and LAK cells.

N CONTRACT OR GRANT NUMBERS: ROIAI2705701; RR00165

N MEDLINE ACCESSION NUMBER: 90030431

6 of 18

I TITLE: Effects of two different patterns of estradiol replacement on the sexual behavior of rhesus monkeys.

U AUTHOR(S): Herndon-JG; Umpierre-DM; Turner-JJ

O SOURCE (BIBLIOGRAPHIC CITATION): Physiol-Behav. 1989 Apr; 45(4): 853-6

SSN INTERNATIONAL STANDARD SERIAL NUMBER: 0031-9384

A LANGUAGE OF ARTICLE: ENGLISH

B ABSTRACT: Seven pairs of rhesus monkeys consisting of adult males and adult, ovariectomized females were tested for sexual behavior. Behavioral tests were conducted under two patterns of estradiol treatment of the females. Under the "constant estrogen" condition, females were given SC injections of 10 micrograms estradiol benzoate on 28 consecutive days. Under the "cyclic estrogen" condition, females were given 28 days of estradiol treatment at varying doses based upon the artificial menstrual cycle devised by Michael, Umpe and Bonsall (6). Rates of male mounting, hip-touch (incomplete mounts), and male threaten-away behavior (redirected aggression) increased during estradiol administration. Mounting peaked at the time of the highest estrogen dosage in the cyclic treatment condition, but was highest during the first portion of the period of constant treatment. Hip-touch and threaten-away behaviors were more frequent in the constant condition than during cyclic treatment. The high levels of these behaviors during the constant treatment suggest a lack of coordination between male and female motivation which is overcome by providing estradiol stimulation in a pattern which mimics the menstrual cycle.

N CONTRACT OR GRANT NUMBERS: RR00165

N MEDLINE ACCESSION NUMBER: 89387363

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I TITLE: Development of acuity in a primate model of human infantile unilateral aphakia.

U AUTHOR(S): O'Dell-CD; Gammon-JA; Fernandes-A; Wilson-JR; Boothe-RG

O SOURCE (BIBLIOGRAPHIC CITATION): Invest-Ophthalmol-Vis-Sci. 1989 Sep; 0(9): 2068-74

SSN INTERNATIONAL STANDARD SERIAL NUMBER: 0146-0404

A LANGUAGE OF ARTICLE: ENGLISH

B ABSTRACT: We are studying infant rhesus monkeys that have been reared under various conditions of deprivation to model infantile unilateral aphakia. Visual acuity was assessed in these monkeys from birth to approximately 1 year of age using the quick acuity card procedure. We found that an uncorrected aphakic eye develops little or no pattern vision. Undercorrection or near point optical correction of an aphakic eye with an extended-wear contact lens coupled with continuous occlusion of the opposite eye sometimes results in normal development of acuity in the aphakic eye but does so only at the cost of loss of vision in the occluded eye. Fifty percent partial occlusion coupled with near-point correction of the aphakic eye results in similar development of acuity for both eyes during the time tested. Monkeys wearing near-point correction in the aphakic eye and without any occlusion of the other eye show surprisingly good residual acuities in their aphakic eyes. Based on these results we conclude that aphakic eyes should be treated by providing them with an optical correction, and that occlusion of the opposite eye should be used cautiously.

N CONTRACT OR GRANT NUMBERS: RR00165; EY05975

N MEDLINE ACCESSION NUMBER: 89379664

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I TITLE: Synaptic organization of individual neurons in the macaque lateral geniculate nucleus.

U AUTHOR(S): Wilson-JR

O SOURCE (BIBLIOGRAPHIC CITATION): J-Neurosci. 1989 Aug; 9(8): 2931-53

SSN INTERNATIONAL STANDARD SERIAL NUMBER: 0270-6474

A LANGUAGE OF ARTICLE: ENGLISH

B ABSTRACT: Parvocellular and magnocellular neurons in the dorsal lateral geniculate nucleus of macaque monkeys were recorded electrophysiologically and then injected with HRP. The injected neurons were examined with the electron microscope. Synaptic terminals contacting the dendrites of individual neurons were classified and the synapses counted to estimate the number and distribution of each type over the entire dendritic tree. Seven parvocellular and 2 magnocellular neurons were analyzed. Two of the parvocellular neurons had presynaptic dendrites and no axons. These interneurons had electrophysiological characteristics much like those of relay neurons with the exception that their receptive field center responses had the opposite sign; i.e., they had OFF centers, while most neurons around them had ON centers. All of the relay neurons had similar types and distributions of terminal contacts. However, the distribution of each synaptic type along the dendrites of an individual neuron was not homogeneous. Retinal and P terminals were located predominantly on proximal dendrites whereas RSD terminals, either from the cortex and/or brain stem, predominated on the intermediate and distal dendrites. Parvocellular neurons were estimated to have about 500 total synapses on their dendritic trees, while magnocellular neurons had about 3000 total synapses on their dendritic trees. The retinal terminals making synaptic

contacts with magnocellular neurons were also presynaptic to terminals containing flattened vesicles; these latter terminals also had synapses onto the magnocellular neuron's dendrites. Such a synaptic arrangement is called a triadic arrangement, or triad. Parvocellular neurons rarely had such triadic arrangements. In comparing these data with those of the cat, it was concluded that the major synaptic difference between relay cell types in both species (Class 1/Class 2 cells for the cat and parvo/magno cells for the monkey) was the frequent occurrence of triads for Class 2 cells and magnocellular cells versus the infrequent occurrence of triads for Class 1 cells and parvocellular cells. Although these triadic arrangements have been studied for over 2 decades, their function has yet to be determined, but probably relates to inhibition of retina signals at dendrites of magnocellular neurons in the monkey and Class 2 cells in the cat.

N CONTRACT OR GRANT NUMBERS: EY04976; RR00165

N MEDLINE ACCESSION NUMBER: 89361660

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I TITLE: Effects of age and sex on bone density in the rhesus monkey.

U AUTHOR(S): Pope-NS; Gould-KG; Anderson-DC; Mann-DR

O SOURCE (BIBLIOGRAPHIC CITATION): Bone. 1989; 10(2): 109-12

SSN INTERNATIONAL STANDARD SERIAL NUMBER: 8756-3282

A LANGUAGE OF ARTICLE: ENGLISH

B ABSTRACT: Normative data for bone density of cortical and trabecular bone in the rhesus monkeys is described in the present study. Changes of bone density (g/cm²) for the humerus, the third lumbar vertebra, and the eighth caudal vertebra of the rhesus monkey show differences due to age and sex of the subjects (males n = 57; females n = 49). In general, bone density increased with age and then reached a plateau at approximately 3 to 4 years in all bones measured. In the humerus, older females (greater than 30 years) had a significantly lower bone density than females of 4 to 24 years, while bone density in older males did not decrease. In the vertebrae, some evidence of advanced age-related decreases in bone density was found in both sexes. These results indicate that the rhesus monkey shows a natural pattern of change in bone mineralization which parallels that seen in humans. The physiological similarity between the rhesus monkey and human further suggests a potential role for this species in the future investigation of osteoporosis.

N CONTRACT OR GRANT NUMBERS: RR00165; HD23295

N MEDLINE ACCESSION NUMBER: 89352129

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I TITLE: Short-day melatonin pattern advances puberty in seasonally breeding rhesus monkeys (*Macaca mulatta*).

U AUTHOR(S): Wilson-ME; Gordon-TP

O SOURCE (BIBLIOGRAPHIC CITATION): J-Reprod-Fertil. 1989 Jul; 86(2): 435-44

SSN INTERNATIONAL STANDARD SERIAL NUMBER: 0022-4251

A LANGUAGE OF ARTICLE: ENGLISH

B ABSTRACT: Prepubertal, spring-born females (Group H: N = 5) living outdoors were given a daily injection of melatonin (0.70 microgram/kg, s.c.) late in the afternoon to produce a short-day melatonin pattern equivalent to a night of approximately 14 h. The dose of melatonin produced serum concentrations of melatonin which simply extended, within the 24 h day, the normal endogenous nighttime elevation (80-100 pg/ml). The study was started in March when the females were 23 months of age and continued through January. Parameters of sexual maturation for this group were compared to those of untreated, age-matched females (Group C: N = 5) which also lived outdoors under changing

environmental conditions. Melatonin treatment significantly advanced age at first perineal swelling (23.9 +/- 0.5 vs 30.5 +/- 0.2 months) and menarche (26.2 +/- 0.9 vs 31.2 +/- 2.4 months). Since all of the females were spring-born, these events occurred earlier in the year in Group H females (swelling: April vs October; menarche: June vs November). Furthermore, 4/5 Group H females exhibited first ovulation in December at 31.8 +/- 0.3 months. None of the Group C females ovulated during their 2nd year, but all did so the next breeding season at 43.5 +/- 0.3 months. All first ovulations in females had luteal-phase progesterone concentrations elevated for at least 12 days with peaks greater than 3.0 ng/ml. Body weights were similar between groups until the post-menarchial interval when weight gain was greater in the melatonin-treated females. A similar pattern of group differences also was observed for serum concentrations of growth hormone and somatomedin-C. In addition, prolactin concentrations were seasonally elevated during the summer months in both groups, but concentrations fell to nadir values by August in Group H females and remained elevated until October in Group C animals. These results suggest that, in adolescent females housed outdoors, exposure to a short-day melatonin pattern permits sexual maturation to be initiated at an earlier age, allowing first ovulation to occur in the months immediately after menarche. A long-day melatonin pattern, typically experienced by females at this developmental age, may actually delay the initiation of maturational events until the subsequent fall months.

CN CONTRACT OR GRANT NUMBERS: HD16305; RR00165
AN MEDLINE ACCESSION NUMBER: 89342328

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TI TITLE: Nocturnal changes in serum melatonin during female puberty in rhesus monkeys: a longitudinal study.
AU AUTHOR(S): Wilson-ME; Gordon-Tp
SO SOURCE (BIBLIOGRAPHIC CITATION): J-Endocrinol. 1989 Jun; 121(3): 553-62
ISSN INTERNATIONAL STANDARD SERIAL NUMBER: 0022-0795
LA LANGUAGE OF ARTICLE: ENGLISH
AB ABSTRACT: Diurnal concentrations of serum melatonin were determined longitudinally in female rhesus monkeys throughout sexual maturation to ascertain how levels varied with advancing age and reproductive onset. Females were housed either in outdoor enclosures (n = 8) exposed to ambient environmental conditions, or indoors (n = 4) under a photoperiod of 12 h light: 12 h darkness and fixed temperature of 20-23 degrees C. Animals were studied from immaturity (15 months) through first ovulation and were additionally compared with fully adult female rhesus monkeys (n = 5) studied during the annual breeding season. The diurnal melatonin pattern was described for the developing females in the summer, autumn and winter in 3 successive years from samples collected at 10.00, 18.00, 22.00, 02.00, 06.00 and 10.00 h. Nocturnal levels of melatonin declined significantly during development in both indoor- and outdoor-housed females with a progressive decrease up to 33 months of age. Daytime values were consistently low but exhibited a slight decline also with age. Nocturnal values in all months sampled fell significantly with greater decreases occurring at the earliest ages. Furthermore, superimposed upon this developmental change, animals housed outdoors responded to seasonal changes in photoperiod with diurnal increases in melatonin occurring after sunset. The females in the present study exhibited first ovulation at two distinct ages: 32-37 months ('early', n = 6) and 41-45 months ('later', n = 5). One female did not ovulate within the study period. Although nocturnal levels of serum melatonin were similar between the two groups up to 29 months of age, a post-hoc analysis revealed that concentrations were significantly lower by 34

months of age for the early group, a time coincident with first ovulation. Nocturnal levels of melatonin remained high, relative to the early group, in the later ovulating females until 43 months of age, coincident with first ovulation for these animals. The diurnal pattern of serum melatonin at first ovulation, regardless of chronological age, was similar to that observed during the ovulatory season for adult female rhesus monkeys. These data suggest that nocturnal melatonin concentrations decline with advancing chronological age in prepubertal female rhesus monkeys. (ABSTRACT TRUNCATED AT 400 WORDS)

1 CONTRACT OR GRANT NUMBERS: HD16305; RR00165

2 MEDLINE ACCESSION NUMBER: 89328289

12 of 18

1 TITLE: Conditions required for detection of specimen-specific SE-I secondary electrons in an analytical SEM.

2 AUTHOR(S): Apkarian-RP

3 SOURCE (BIBLIOGRAPHIC CITATION): J-Microsc. 1989 May; 154 (Pt 2): 177-88

4 ISSN INTERNATIONAL STANDARD SERIAL NUMBER: 0022-2720

5 LANGUAGE OF ARTICLE: ENGLISH

6 ABSTRACT: An analytical SEM equipped with an above-the-lens detector, an above-the-lens specimen stage and a high brightness LaB6 emitter was used to produce a specimen-specific, secondary electron-I (SE-I) signal for recording edge brightness contrast with high intensity on small particles at high magnification (200,000). The SE-I edge brightness contrast produced from 20-40 nm colloidal gold on silicon wafers was useful for estimating instrument resolution since the edge brightness is the sum of the SE-I signal range (approximately equal to 1 nm) and the beam diameter. LaB6 crystal saturation and gun conditions were determined in order to minimize the probe diameter at the first cross-over position. Ferritin particles also on the silicon wafers were imaged by adjustments of the gun bias voltage conditions. Establishment of these conditions was useful for high resolution SEM studies of appropriately coated bulk biological specimens.

7 CONTRACT OR GRANT NUMBERS: RR00165; ES03791

8 MEDLINE ACCESSION NUMBER: 89311414

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1 TITLE: Measurement of binocular alignment in normal monkeys and in monkeys with strabismus.

2 AUTHOR(S): Quick-MW; Boothe-RG

3 SOURCE (BIBLIOGRAPHIC CITATION): Invest-Ophthalmol-Vis-Sci. 1989 Jun; 30(6): 1159-68

4 ISSN INTERNATIONAL STANDARD SERIAL NUMBER: 0146-0404

5 LANGUAGE OF ARTICLE: ENGLISH

6 ABSTRACT: Accurate assessment of ocular alignment in monkeys is difficult because typical clinical methods require extensive cooperation by the subject and provide only a rough estimate of the misalignment. Recently, Brodie derived a geometrical model for determining the Hirschberg ratio in humans, and validated it photographically. In this study, we have applied these procedures in order to determine corresponding values for monkeys. We have found the average Hirschberg ratio for macaques to be approximately 14 degrees of rotation per millimeter corneal light reflex displacement. We extended the model to binocular viewing conditions, which allows for a description of the visual axes in Cartesian coordinates in relation to the head. Fixation errors, computed in terms of lateral and axial error vectors from intended fixation targets, were then determined for one normal monkey and for three monkeys that have a naturally occurring strabismus. Assessment of the fixation errors was

ade at several different distances and angles in the horizontal plane. The standard deviation for our measurements averaged 2.1 degrees. Our data indicate that measurements must be made at multiple locations throughout the visual field in order to accurately specify the pattern of misalignment. Finally, a procedure is demonstrated which specifies the misalignment in terms of a cyclopic eye, which is independent of the interocular separation.

N CONTRACT OR GRANT NUMBERS: EY06436; RR00165

N MEDLINE ACCESSION NUMBER: 89277674

14 of 18

I TITLE: Selective elimination of cross-compartmental innervation in rat lateral gastrocnemius muscle.

U AUTHOR(S): Donahue-SP; English-AW

O SOURCE (BIBLIOGRAPHIC CITATION): J-Neurosci. 1989 May; 9(5): 1621-7

SSN INTERNATIONAL STANDARD SERIAL NUMBER: 0270-6474

A LANGUAGE OF ARTICLE: ENGLISH

B ABSTRACT: The calf muscles of the rat hindlimb are composed of smaller entities, called neuromuscular compartments, which are the territories of muscle innervated by a single, naturally occurring primary (first-order) muscle nerve branch. While it is quite clear that a precise connectivity exists very early in development between motoneuron pools and individual muscles, the mechanisms responsible for producing the adult pattern of compartmental innervation are unknown. This study uses intracellular recording techniques to demonstrate that neuromuscular compartments are essentially established at birth and that postnatal synapse elimination has little role in establishing neuromuscular compartments. Our results demonstrate the existence of a small number of cross-compartmental connections in neonates which are not present in adults. Examining the removal of these cross-compartmental connections in both normal muscles and in muscles that have had synapse elimination delayed by denotomomy reveals that the synapses responsible for this innervation are eliminated in a selective manner.

N CONTRACT OR GRANT NUMBERS: NS20545; RR00165

N MEDLINE ACCESSION NUMBER: 89257611

15 of 18

I TITLE: Early abnormal visual experience induces strabismus in infant monkeys.

U AUTHOR(S): Quick-MW; Tigges-M; Gammon-JA; Boothe-RG

O SOURCE (BIBLIOGRAPHIC CITATION): Invest-Ophthalmol-Vis-Sci. 1989 May; 9(5): 1012-7

SSN INTERNATIONAL STANDARD SERIAL NUMBER: 0146-0404

A LANGUAGE OF ARTICLE: ENGLISH

B ABSTRACT: We measured ocular alignment in the horizontal direction for 17 monkeys reared under deprivation paradigms that involved monocular defocus, monocular occlusion and optically corrected aphakia coupled with continuous or partial occlusion of the fellow eye. Alignment was measured at 3 and 7 months with a photographic corneal light reflex method. Results showed that a majority of the monkeys in each paradigm developed strabismus following deprivation rearing, the common factor being early abnormal visual experience. Results also indicated a trend in which many of the deviations seen at 3 months of age were exotropic while all of the animals with deviations at 7 months of age were esotropic. These results on deprivation-induced strabismus, which are the first reported in monkeys, are consistent with previous findings in cats and humans, providing further evidence that deprivation affects not only sensory, but motor systems as well. These findings provide evidence that infant monkeys are a good

odel for studies of the possible relationships between amblyopia and strabismus that are often noted in children with early visual deprivation. Furthermore, it raises the prospect that some of the findings in previous animal studies that have been attributed to the direct effects of deprivation may actually be secondary to the induced misalignment.

N CONTRACT OR GRANT NUMBERS: EY05975; EY06001; RR00165

N MEDLINE ACCESSION NUMBER: 89254352

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I TITLE: HIV infection of chimpanzees as a model for testing chemotherapeutics.

U AUTHOR(S): Fultz-PN; McClure-HM; Swenson-RB; Anderson-DC

O SOURCE (BIBLIOGRAPHIC CITATION): Intervirology. 1989; 30 Suppl 1: 51-8

SSN INTERNATIONAL STANDARD SERIAL NUMBER: 0300-5526

A LANGUAGE OF ARTICLE: ENGLISH

B ABSTRACT: Following inoculation of chimpanzees, the human immunodeficiency virus (HIV) establishes a long-term persistent infection characterized by seroconversion and the presence in peripheral blood cells of recoverable virus which can be quantitated. Because most HIV-infected chimpanzees have developed no signs of clinical diseases or hematologic abnormalities, their virologic, serologic and other immune responses can be compared with those of asymptomatic HIV-infected persons. This analysis might lead to the identification of factors important in preventing the development of disease. There are now approximately 100 HIV-infected chimpanzees in the United States, and many of these animals could be made available for testing chemotherapeutic agents for the ability to alter virus load or to enhance immune responses.

N CONTRACT OR GRANT NUMBERS: RR00165; 200830626

N MEDLINE ACCESSION NUMBER: 89213287

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I TITLE: Season determines timing of first ovulation in rhesus monkeys (*Macaca mulatta*) housed outdoors.

U AUTHOR(S): Wilson-ME; Gordon-TP

O SOURCE (BIBLIOGRAPHIC CITATION): J-Reprod-Fertil. 1989 Mar; 85(2): 583-91

SSN INTERNATIONAL STANDARD SERIAL NUMBER: 0022-4251

A LANGUAGE OF ARTICLE: ENGLISH

B ABSTRACT: In order to determine the relative importance of age and season on the occurrence of first ovulation in rhesus monkeys, the timing of puberty in spring-born females (Group S, N = 13) was compared to that of fall (N = 3) and winter-born (N = 5) females (Group W). All females were housed outdoors and were studied from 12 months of age through first ovulation. Menarche occurred at a similar age but significantly earlier in the year for Group W (31.2 +/- 0.7 months; 25 August +/- 19.5 days) than for Group S females (31.2 +/- 0.7 months; 14 November +/- 17.1 days). First ovulation, as assessed from twice weekly serum progesterone determinations, occurred exclusively in the fall or winter in a bimodal age distribution for all females. For Group W females, 6/8 ovulated during the 3rd year at 35.8 +/- 0.7 months while 2/8 ovulated during the 4th year at 45.3 +/- 0.1 months. In contrast, only 3/13 Group S females ovulated during the 3rd year and at a significantly younger age of 31.4 +/- 0.4 months compared to Group W. The remaining Group S females (10/13) ovulated the following autumn at 43.2 +/- 0.2 months, significantly younger than the later ovulating Group W females. In addition to this pattern of first ovulation, serum concentrations of prolactin varied seasonally, rather than with age, in both groups of females with higher levels in the summer and low levels in the winter. (ABSTRACT TRUNCATED AT 250 WORDS)

o. Records Request
: 24 YERKES

1 of 24

I TITLE: Techniques and significance of gamete collection and storage in the great apes.

U AUTHOR(S): Gould-KG

O SOURCE (BIBLIOGRAPHIC CITATION): J-Med-Primatol. 1990; 19(6): 537-51

SSN INTERNATIONAL STANDARD SERIAL NUMBER: 0047-2565

A LANGUAGE OF ARTICLE: ENGLISH

B ABSTRACT: Rectal probe electroejaculation (RPE) is the most frequently used method for semen recovery in the great apes. Artificial insemination has been successful in the chimpanzee and gorilla. Oocytes can be recovered using laparoscopic techniques similar to those used in human medicine. At this time there has been no successful in vitro fertilization with birth of an infant in the great apes. Semen can be successfully frozen in the apes, as documented by recovery of motility of sperm after thawing. Pregnancies have been initiated in the chimpanzee and gorilla using frozen thawed semen.

N CONTRACT OR GRANT NUMBERS: RR00165RRNCRR; RR03587RRNCRR

N MEDLINE ACCESSION NUMBER: 91061306

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I TITLE: Nonhuman primate models for evaluation of AIDS therapy.

U AUTHOR(S): McClure-HM; Anderson-DC; Ansari-AA; Fultz-PN; Klumpp-SA; Chinazi-RF

O SOURCE (BIBLIOGRAPHIC CITATION): Ann-N-Y-Acad-Sci. 1990; 616: 287-98

SSN INTERNATIONAL STANDARD SERIAL NUMBER: 0077-8923

A LANGUAGE OF ARTICLE: ENGLISH

B ABSTRACT: Infection of macaque monkeys with simian immunodeficiency virus (SIV) has been established as an excellent animal model system for studying the pathogenesis of an HIV-like virus and for evaluating newly developed antiretroviral drugs and vaccines. Based on their genetic, antigenic, and biologic properties, the simian immunodeficiency viruses are the closest known relatives of the human AIDS viruses, and experimental infection of macaque monkeys results in a disease that is remarkably similar to human AIDS. Infected macaques show diarrhea, weight loss, hematologic abnormalities including lymphopenia and thrombocytopenia, lymphadenopathy/lymphoid hyperplasia that progresses to lymphoid depletion, immunosuppression with marked reduction in CD4+ cells and in the CD4+/CD8+ cell ratio, and opportunistic infections. A majority of such macaques die from an AIDS-like disease within one to three years of infection. An acutely lethal variant of SIV has been identified that results in death in susceptible macaques within 7-12 days of infection. Preliminary prophylactic treatment trials with AZT in macaque monkeys exposed to the acutely lethal SIV variant indicate that some protection is provided when AZT treatment is initiated within 24 hours of virus exposure. Other studies with the more chronic SIV infection model, however, failed to show any prophylactic efficacy of CS-87, AZT, D4T, or FDT.

N CONTRACT OR GRANT NUMBERS: RR00165RRNCRR; AI26055AINIAID

N MEDLINE ACCESSION NUMBER: 91174348

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I TITLE: Effects of dominance rank on d-amphetamine-induced increases in aggression.

N MEDLINE ACCESSION NUMBER: 91012544

11 of 24

I TITLE: *picA*, a novel plant-inducible locus on the *Agrobacterium tumefaciens* chromosome.

U AUTHOR(S): Rong-L; Karcher-SJ; O'Neal-K; Hawes-MC; Yerkes-CD; Jayaswal-RK; allberg-CA; Gelvin-SB

O SOURCE (BIBLIOGRAPHIC CITATION): J-Bacteriol. 1990 Oct; 172(10): 5828-36
SSN INTERNATIONAL STANDARD SERIAL NUMBER: 0021-9193

A LANGUAGE OF ARTICLE: ENGLISH

B ABSTRACT: We used the transposon Mu dII681 to identify genes on the *Agrobacterium tumefaciens* chromosome that are inducible by extracts from carrot roots. One such locus (*picA*, for plant inducible chromosomal), harbored by *A. tumefaciens* At156, was inducible 10- to 50-fold by these extracts. Mutation of *ica* had no detectable effect upon bacterial growth or virulence under laboratory assay conditions. However, *A. tumefaciens* cells harboring a mutated *ica* locus aggregated into long "ropes" when incubated with pea root tip cells. Such aggregation was not displayed by the parental strain *A. tumefaciens* A136. preliminary characterization of the inducing compound in the carrot root extract suggests that the active substance is an acidic polysaccharide that is most likely derived from the pectic portion of the plant cell wall.

N MEDLINE ACCESSION NUMBER: 91008956

12 of 24

I TITLE: Humoral response to SIV/SMM infection in macaque and mangabey monkeys.

U AUTHOR(S): Fultz-PN; Stricker-RB; McClure-HM; Anderson-DC; Switzer-WM; oraist-C

O SOURCE (BIBLIOGRAPHIC CITATION): J-Acquir-Immune-Defic-Syindr. 1990; 3(4): 19-29

SSN INTERNATIONAL STANDARD SERIAL NUMBER: 0894-9255

A LANGUAGE OF ARTICLE: ENGLISH

B ABSTRACT: Natural infection of sooty mangabey monkeys with simian immunodeficiency virus, designated SIV/SMM, results in long-term persistent infections with little or no disease. In contrast, experimental infection of macaques with isolates of SIV/SMM induces chronic and progressive disease that terminates in an AIDS-like illness and death in most animals. To determine whether antibodies might be important in preventing the development of disease in mangabeys or progression of disease in macaques, humoral immune responses to SIV/SMM were compared in 13 macaques infected for up to 43 months and in infected and uninfected mangabeys selected at random from among a breeding colony. Total SIV/SMM-specific antibody titers, profiles of antibodies to specific viral proteins, neutralizing antibodies that inhibited infectivity of cell-free virus or syncytia formation, antibodies that inhibited reverse transcriptase activity, and antibodies to lymphocyte cell-surface antigens were assessed. The results indicated that in macaques the magnitude of the SIV/SMM-specific antibody response and progression of disease were functions of virus load. Surprisingly, asymptomatic mangabeys also had high virus loads with, on average, lower antibody titers than macaques. In both species, the presence of neutralizing antibodies or antibodies that inhibited SIV/SMM reverse transcriptase activity did not correlate with protection from clinical disease. A correlation was observed, however, between the development of disease and the presence of antibodies to an 18-kDa protein that is found on the surface of activated lymphocytes and appears to be related to histone H2B. A similar correlation has been observed in association with HIV infection in

umans, suggesting that some manifestations of both human and simian AIDS may result from autoimmune reactions.

IN CONTRACT OR GRANT NUMBERS: RR00165RRNCRR

IN MEDLINE ACCESSION NUMBER: 90188838

13 of 24

TI TITLE: Early interactions between animal psychologists and animal activists and the founding of the APA Committee on Precautions in Animal Experimentation.

AU AUTHOR(S): Dewsbury-DA

SO SOURCE (BIBLIOGRAPHIC CITATION): Am-Psychol. 1990 Mar; 45(3): 315-27

ISSN INTERNATIONAL STANDARD SERIAL NUMBER: 0003-066X

LA LANGUAGE OF ARTICLE: ENGLISH

AB ABSTRACT: The current conflict between animal psychologists and animal rights activists often is presented as a recent and unique phenomenon. Although its scope may be unprecedented, the fundamental issues are longstanding. Early criticisms of animal psychologists are viewed in the context of the broader Victorian antivivisectionist movement and are seen as similar to those of the present time. Various attitudes toward animals and research were expressed by individuals such as Charles Darwin, George John Romanes, William James, and John Dewey. Media attacks on animal research were directed at psychologists such as G. Stanley Hall, John B. Watson, Ivan P. Pavlov, and Edward L. Thorndike. The American Psychological Association Committee on Precautions in Animal Experimentation was founded in 1925 at the instigation of Walter B. Cannon, with Robert M. Yerkes as the first chair.

IN MEDLINE ACCESSION NUMBER: 90178794

14 of 24

TI TITLE: Effects of a gonadotropin-releasing hormone agonist on sexual behavior in male rhesus monkeys (*Macaca mulatta*).

AU AUTHOR(S): Turner-JJ; Copenhaver-JM; Herndon-JG; Collins-DC

SO SOURCE (BIBLIOGRAPHIC CITATION): Fertil-Steril. 1990 Mar; 53(3): 578-80

ISSN INTERNATIONAL STANDARD SERIAL NUMBER: 0015-0282

LA LANGUAGE OF ARTICLE: ENGLISH

AB ABSTRACT: Low levels of sexual behavior persist in male rhesus monkeys treated with GnRH-a despite very low levels of T and gonadotropin that occur during such treatment. The behavior of male rhesus monkeys treated with GnRH-a resembles the behavior of surgically castrated male rhesus monkeys more closely than it does the behavior of reproductively quiescent males during the normal nonmating season. The normal, seasonal cessation of sexual behavior in male rhesus monkeys may result from changes in behavioral sensitivity to circulating androgens.

IN CONTRACT OR GRANT NUMBERS: RR00165RRNCRR

IN MEDLINE ACCESSION NUMBER: 90169222

15 of 24

TI TITLE: Prevalence of natural infection with simian immunodeficiency virus and simian T-cell leukemia virus type I in a breeding colony of sooty mangabey monkeys.

AU AUTHOR(S): Fultz-PN; Gordon-TP; Anderson-DC; McClure-HM

SO SOURCE (BIBLIOGRAPHIC CITATION): AIDS. 1990 Jul; 4(7): 619-25

ISSN INTERNATIONAL STANDARD SERIAL NUMBER: 0269-9370

LA LANGUAGE OF ARTICLE: ENGLISH

AB ABSTRACT: The seroprevalence of antibodies to simian immunodeficiency virus (SIVsmm) and simian T-cell leukemia virus type I (STLV-I) in a captive breeding colony of sooty mangabey monkeys was determined, and infection by SIVsmm was

onfirmed in all cases by virus isolation. Among 138 animals tested, 57 and 33% were infected with SIVsmm and STLV-I, respectively. While the proportion of female mangabeys (66%) differed significantly (P less than 0.01) from the proportion of male mangabeys (42%) infected with SIVsmm, the proportions of males and females infected with STLV-I were similar, suggesting independent transmission of the two viruses. Among mangabeys less than 1 year old, none were infected with STLV-I and only five of 27 mangabeys, all of which were at least 6 months old when first tested, were infected with SIVsmm. The data document that natural infection of sooty mangabey monkeys with SIVsmm or in association with STLV-I infection does not result in increased disease or mortality, and that transmission of both SIVsmm and STLV-I appears to occur primarily through sexual activity.

N CONTRACT OR GRANT NUMBERS: RR00165RRNCRR
N MEDLINE ACCESSION NUMBER: 90373052

16 of 24

I TITLE: Peer interaction in infant chimpanzees.
U AUTHOR(S): Tomasello-M; Gust-DA; Evans-A
O SOURCE (BIBLIOGRAPHIC CITATION): Folia-Primatol-Basel. 1990; 55(1): 33-40
SSN INTERNATIONAL STANDARD SERIAL NUMBER: 0015-5713
A LANGUAGE OF ARTICLE: ENGLISH
B ABSTRACT: The peer interactions of 6 infant chimpanzees (*Pan troglodytes*) ranging in age from 18 to 50 months were observed in a seminatural context. The infants and their mothers lived as members of a captive social group at the Yerkes Regional Primate Research Center. An analysis of contact initiations between infants indicated that the most preferred peer interactant was the youngest and the least preferred was the oldest infant. Infants also initiated more interactions with the offspring of adults that had the closest relationships with both themselves and their mothers. These results indicate that a number of factors may influence the peer affiliations of infant chimpanzees, including the age of the infant and the mother's social relationships.

N CONTRACT OR GRANT NUMBERS: RR00165RRNCRR
N MEDLINE ACCESSION NUMBER: 90368031

17 of 24

I TITLE: Correlative light, transmission, and high resolution (SE-I) scanning electron microscopy studies of rhesus adrenocortical vascular morphology.
U AUTHOR(S): Apkarian-RP; L'Hernault-NL
O SOURCE (BIBLIOGRAPHIC CITATION): Scanning-Microsc. 1990 Mar; 4(1): 125-32; discussion 132-3
SSN INTERNATIONAL STANDARD SERIAL NUMBER: 0891-7035
A LANGUAGE OF ARTICLE: ENGLISH
B ABSTRACT: A detailed correlative morphologic description using light microscopy (LM), transmission electron microscopy (TEM) and high resolution SE-I scanning electron microscopy (SEM) was conducted on the capillary endothelium of the zona-fasciculata (Z-F) in juvenile male rhesus monkeys. The glucocorticoid synthesis and release phenomena, associated with stress stimulated release of adrenocorticotrophic hormone (ACTH) via the hypothalamic-pituitary axis, intimately involves capillaries of the Z-F. A comprehensive study of all the ultrastructural features implicated in the transendothelial uptake of steroidogenic precursors and release of glucocorticoids in perfused rhesus adrenals has not previously been made. This report presents correlative images of transendothelial openings that include previously described single diaphragmed fenestrae and plasmalemma vesicles, and

ouble diaphragmed transendothelial channels. New observations of endothelial cell pockets, tight junctional complexes and membrane filled ghost sacs were recorded from perfused rhesus adrenal. Membranous ghosts associated with adrenocortical endothelium were reported in a previous TEM study of perfused rat, however the potential argument existed that ghosts were artifactual. Their role as steroid hormone releasing structures remains an open question, yet their structural characteristics appear justified based on imaging of identical profiles observed in perfused rhesus adrenocortical specimens. These structural features are considered for the potential of gating and sorting of metabolites, and release of glucocorticoids in response to ACTH stimulated stress events.

N CONTRACT OR GRANT NUMBERS: RR00165RRNCRR

N MEDLINE ACCESSION NUMBER: 90312100

18 of 24

I TITLE: Neuronal population of area 4 during the life span of the rhesus monkey.

U AUTHOR(S): Tigges-J; Herndon-JG; Peters-A

O SOURCE (BIBLIOGRAPHIC CITATION): Neurobiol-Aging. 1990 May-Jun; 11(3): 01-8

SSN INTERNATIONAL STANDARD SERIAL NUMBER: 0197-4580

A LANGUAGE OF ARTICLE: ENGLISH

B ABSTRACT: One right or left area 4 of each of 19 rhesus monkeys, ranging in age from 1 day to 35 years, was processed (frozen sectioned at 30 or 40 microns) for light microscopic analysis to assess age-related changes in the neuronal population. All neurons were examined regardless of their size. In addition, Betz cells were analyzed separately; to be regarded as Betz cells, pyramidal somata had to display a minimum height of 38 microns. A significant loss of approximately one-third was observed in the total number of neurons in maturing monkeys (less than 5.5 years). In contrast, in maturing rhesus monkeys significant increases with age were observed in the mean number of Betz cells, and in the means of Betz cell area, height, width, perimeter, and estimated volume. In adult monkeys (greater than 4.5 years), no age-associated loss of neurons was observed. Also, no loss of Betz cells occurred, although the perimeter, area, and estimated volume of Betz cells decreased slightly, but significantly, with increasing age in adult monkeys. Lipofuscin granules were discernable in Betz cells beginning at the age of 5 years and their number increased with increasing age. In the older rhesus monkeys, the lipofuscin granules were so large and numerous that in some Betz cell somata they displaced the nucleus from its usual location in the center of the cell. No age-related change in thickness of area 4 was found.

N CONTRACT OR GRANT NUMBERS: RR00165RRNCRR; 2P01AG0000AGNIA; NEI06001

N MEDLINE ACCESSION NUMBER: 90301213

19 of 24

I TITLE: Accessory lateral rectus orbital geometry in normal and naturally strabismic monkeys.

U AUTHOR(S): Boothe-RG; Quick-MW; Joosse-MV; Abbas-MA; Anderson-DC

O SOURCE (BIBLIOGRAPHIC CITATION): Invest-Ophthalmol-Vis-Sci. 1990 Jun; 1(6): 1168-74

SSN INTERNATIONAL STANDARD SERIAL NUMBER: 0146-0404

A LANGUAGE OF ARTICLE: ENGLISH

B ABSTRACT: We conducted anatomic dissections of macaque monkey orbits and made a quantitative assessment of the orbital geometry of the accessory lateral rectus muscle. Our results show that the expected effect of this muscle on rotations of the globe is to produce elevation and abduction. The abducting

Component could counteract nasal drifts, and thus our findings provide support for the hypothesis that this muscle could render monkeys resistant to the development of esodeviations. Dissections of the orbits from two naturally isotropic monkeys also are consistent with this hypothesis. The accessory lateral rectus muscle was absent in one of them and abnormally small in the other. Humans do not have an accessory lateral rectus muscle, and we speculate that the high prevalence of esodeviations in humans may be related to an evolutionary loss of this muscle system.

N CONTRACT OR GRANT NUMBERS: RR00165RRNCRR

N MEDLINE ACCESSION NUMBER: 90285027

20 of 24

I TITLE: Sialolithiasis in two chimpanzees.

J AUTHOR(S): Orkin-JL; Braswell-LD

O SOURCE (BIBLIOGRAPHIC CITATION): J-Am-Vet-Med-Assoc. 1990 May 15; 196(10): 551-3

SSN INTERNATIONAL STANDARD SERIAL NUMBER: 0003-1488

A LANGUAGE OF ARTICLE: ENGLISH

B ABSTRACT: Sialoliths were found in the duct of the submandibular salivary gland in 2 of 50 chimpanzees (*Pan troglodytes*) examined, and were surgically removed. Recovery was uncomplicated. Although sialoliths are uncommon in domestic, zoo, and laboratory animals, the signs of sialolithiasis may mimic other problems.

N CONTRACT OR GRANT NUMBERS: RR00165RRNCRR; R01DE06436DENIDR;

01DE05967DENIDR

N MEDLINE ACCESSION NUMBER: 90270089

21 of 24

I TITLE: Sex differences in aversive and appetitive conditioning in two strains of rats.

J AUTHOR(S): Saavedra-MA; Abarca-N; Arancibia-P; Salinas-V

O SOURCE (BIBLIOGRAPHIC CITATION): *Physiol-Behav.* 1990 Jan; 47(1): 107-12

SSN INTERNATIONAL STANDARD SERIAL NUMBER: 0031-9384

A LANGUAGE OF ARTICLE: ENGLISH

B ABSTRACT: In order to examine sex differences in non sexual behavior, 40 rats of each sex from two strains (gray, A x C and albino, Sprague-Dawley) were trained, using different experimental procedures. In Experiment I, aversive conditioning in a one-way (easy task) and a two-way (difficult task) active avoidance task was examined. Results consistently showed that males of both strains were inferior to females in the acquisition of the two-way avoidance task. A significant interaction between sex of both strains and the difficulty of the task was found. In Experiment II, rats were trained in a Sutherland apparatus in an easy (black vs. white) and a difficult (horizontal vs. vertical) visual discrimination task, using appetitive reinforcement; no differences between sexes were observed. A significant interaction, however, was found between strain and task, indicating a lower performance of the A x C strain in the difficult task. The results are discussed within the theoretical framework of the Verkes-Dodson Law, which states a relationship between drive level, performance and different degrees of task difficulty.

N MEDLINE ACCESSION NUMBER: 90222285

22 of 24

I TITLE: Acquisition of fertilizing capacity by chimpanzee sperm.

J AUTHOR(S): Gould-KG; Young-LG

O SOURCE (BIBLIOGRAPHIC CITATION): *Folia-Primatol-Basel.* 1990; 54(1-2): 105-8

SSN INTERNATIONAL STANDARD SERIAL NUMBER: 0015-5713
A LANGUAGE OF ARTICLE: ENGLISH
N CONTRACT OR GRANT NUMBERS: RR00165RRNCRR; HD16831HDNICHD
N MEDLINE ACCESSION NUMBER: 90215578

23 of 24

I TITLE: A high resolution SE-I SEM assessment of diimidester fixed
chimpanzee sperm.
U AUTHOR(S): Apkarian-RP; Young-LG; Gould-KG
O SOURCE (BIBLIOGRAPHIC CITATION): J-Electron-Microsc-Tech. 1990 Feb; 14(2):
77-8

SSN INTERNATIONAL STANDARD SERIAL NUMBER: 0741-0581
A LANGUAGE OF ARTICLE: ENGLISH
N MEDLINE ACCESSION NUMBER: 90155506

24 of 24

I TITLE: High resolution SE-I SEM study of enamel crystal morphology.
U AUTHOR(S): Apkarian-RP; Gutekunst-MD; Joy-DC
O SOURCE (BIBLIOGRAPHIC CITATION): J-Electron-Microsc-Tech. 1990 Jan; 14(1):
0-8

SSN INTERNATIONAL STANDARD SERIAL NUMBER: 0741-0581
A LANGUAGE OF ARTICLE: ENGLISH

B ABSTRACT: Until recently high resolution TEM was the only imaging mode
capable of probing the atomic lattice structure of crystals composing tooth
enamel. Studies designed to determine the polyhedral shape of normal enamel
crystals and initiation of carious lesions in enamel crystals were hampered and
limited by interpretation of two-dimensional TEM images from thin section and
freeze fracture replica specimens lacking depth of field. The newly developed
SE-I signal mode for SEM (SE-I/SE-II ratio) can produce images of enamel
crystals approaching beam diameter dimensions (0.7-2.0 nm), rivaling the
resolution of the TEM technique and generating topographic contrasts for three
dimensional imaging at very high magnification (approximately 1,000,000X).
Ultrathin chromium (Cr) films generate enriched high resolution SE-I contrasts
of enamel crystal surfaces and when imaged using an immersion lens field
emission SEM operated at high voltage (20-30 KeV) produce unsurpassed
topographic contrasts. Since the grain size of Cr is below the resolution of
any SEM and is ultrathin (approximately 1 nm), then SE-I images can provide a
more accurate representation of enamel crystal structure than TEM
methodologies. Our SE-I SEM observations of normal human enamel crystals reveal
fractured spicules which contain angled flat surfaces delineated by a prominent
nm wide SE-I edge brightness contrast. Although microscopic observations
often show crystals which are hexagonal in cross-section, in both SEM and TEM
any other growth habits, including rectangular or irregular crystals (30-40 nm
in width) which contain "notches," are also observed. More detailed
morphological studies are therefore required to determine the most likely habit
planes and their relevance to the function of the enamel crystals. (ABSTRACT
TRUNCATED AT 250 WORDS)

N CONTRACT OR GRANT NUMBERS: RR00165RRNCRR
N MEDLINE ACCESSION NUMBER: 90132969

o. Records Request
: 13 YERKES

1 of 13

TI TITLE: Characterization of the effects of cocaine and GBR 12909, a dopamine uptake inhibitor, on behavior in the squirrel monkey.

AU AUTHOR(S): Howell-LL; Byrd-LD

SO SOURCE (BIBLIOGRAPHIC CITATION): J-Pharmacol-Exp-Ther. 1991 Jul 1; 258(1): 78-85

ISSN INTERNATIONAL STANDARD SERIAL NUMBER: 0022-3565

LA LANGUAGE OF ARTICLE: ENGLISH

AB ABSTRACT: The behavioral effects of cocaine and GBR 12909, a highly selective dopamine uptake inhibitor, were compared in squirrel monkeys trained to respond under a fixed-interval schedule of stimulus termination and a second-order schedule of drug self-administration. Both drugs exhibited similar pharmacological profiles; intermediate doses increased response rates markedly and higher doses decreased response rates below control values. The magnitude of the rate-increasing effect was similar for cocaine and GBR 12909, although cocaine was approximately 3 times more potent. In contrast, the direct-acting dopamine agonists, SKF 38393 and quinpirole, produced only decreases in response rates. When cocaine and GBR 12909 were studied in combination with dopamine antagonists, the effects of either on fixed-interval performance were attenuated in a similar manner by a D1-selective antagonist (SCH 23390) and a D2-selective antagonist (spiperone), indicating the involvement of both D1 and D2 receptor subtypes. In contrast, an alpha 1-selective antagonist (prazosin) did not alter the dose-effect curve for cocaine or GBR 12909 in a manner that indicated a pharmacological antagonism. When doses of cocaine were administered in combination with GBR 12909, the effects on behavior were additive. However, the combined effects of cocaine and SKF 38393 or cocaine and quinpirole were more complex and did not appear to be additive. When the cocaine or GBR 12909 was self-administered under a second-order, fixed-interval schedule of drug injection, schedule-appropriate responding was maintained and the potency difference between the two drugs was comparable to that observed under the stimulus-termination schedule.(ABSTRACT TRUNCATED AT 250 WORDS)

EN CONTRACT OR GRANT NUMBERS: DA01161DANIDA; DA05346DANIDA; DA06264DANIDA

AN MEDLINE ACCESSION NUMBER: 91303387

2 of 13

TI TITLE: Isolation from African Sykes' monkeys (*Cercopithecus mitis*) of a lentivirus related to human and simian immunodeficiency viruses.

AU AUTHOR(S): Emau-P; McClure-HM; Isahakia-M; Else-JG; Fultz-PN

SO SOURCE (BIBLIOGRAPHIC CITATION): J-Virol. 1991 Apr; 65(4): 2135-40

ISSN INTERNATIONAL STANDARD SERIAL NUMBER: 0022-538X

LA LANGUAGE OF ARTICLE: ENGLISH

AB ABSTRACT: Analysis of serum samples from 100 wild-caught or colony-born Sykes' monkeys (*Cercopithecus mitis*) in Kenya revealed that 59 animals had antibodies cross-reactive to human immunodeficiency virus type 2 (HIV-2) and to simian immunodeficiency viruses (SIVs). A lentivirus, designated SIVsyk, was isolated from five of six seropositive asymptomatic Sykes' monkeys, but in four cases isolation was possible only after depletion of CD8+ lymphocytes and cocultivation of the CD4(+)-enriched cell population with peripheral blood mononuclear cells from seronegative Sykes' monkeys. SIVsyk resembled other SIVs and HIVs morphologically, had an Mg2(+)-dependent reverse transcriptase enzyme,

and replicated in and was cytopathic for CEMx174 and Sup-T1 cells. SIVsyk differed substantially from other SIVs, however, in that it failed to replicate in normal human, mangabey, and macaque peripheral blood mononuclear cells and serum from seropositive Sykes' monkeys immunoprecipitated antigens from HIV-1 as well as from HIV-2, SIVsmm, and SIVagm. These data demonstrate a high prevalence of natural infection in Sykes' monkeys in Kenya with a lentivirus that appears to be unique with respect to its host range and antigenic cross-reactivity.

UN CONTRACT OR GRANT NUMBERS: RR00165RRNCRR
UN MEDLINE ACCESSION NUMBER: 91162771

3 of 13

I TITLE: Effects of aphakia on the geniculostriate system of infant rhesus monkeys.

UN AUTHOR(S): Wilson-JR; Tigges-M; Boothe-RG; Tigges-J; Gammon-JA
UN SOURCE (BIBLIOGRAPHIC CITATION): Acta-Anat-Basel. 1991; 142(3): 193-203
UN ISSN INTERNATIONAL STANDARD SERIAL NUMBER: 0001-5180
UN LANGUAGE OF ARTICLE: ENGLISH

UN ABSTRACT: The effects on the visual system of rearing rhesus monkeys with monocular aphakia, corrected with extended-wear contact lenses, were assessed with anatomical, electrophysiological and behavioral methods. The major finding was that the effects of the various treatments on the aphakic eye varied in degree depending upon the amount of focused pattern input received by the aphakic eye compared to its fellow eye. The behavioral, electrophysiological and anatomical assessments of the treatment effects on the aphakic eyes correlated closely with each other. Because this experimental paradigm is similar to current clinical procedures for treating human infantile monocular cataracts, it provides a nonhuman primate model for studying aphakia.

UN CONTRACT OR GRANT NUMBERS: RR00165RRNCRR; EY05975EYNEI; EY06001EYNEI
UN MEDLINE ACCESSION NUMBER: 92180659

4 of 13

I TITLE: Effects of monocular deprivation on the visual fields of squirrel monkeys.

UN AUTHOR(S): Wilson-JR; Nevins-CL
UN SOURCE (BIBLIOGRAPHIC CITATION): Behav-Brain-Res. 1991 Aug 29; 44(2): 29-31
UN ISSN INTERNATIONAL STANDARD SERIAL NUMBER: 0166-4328
UN LANGUAGE OF ARTICLE: ENGLISH

UN ABSTRACT: Five squirrel monkeys were monocularly deprived at birth for 3 years. Visual field testing for the deprived eye revealed no responses to visual stimuli at any position, including the monocular segment. These results are similar to those obtained in macaque monkeys after long-term neonatal monocular deprivation and indicate that lack of patterned visual input to an eye during development in primates can produce functional blindness throughout the visual field. Because the monocular segment of the visual field was not spared, binocular competition cannot be the only mechanism underlying this loss. Instead, lack of patterned visual input probably causes improper neuronal connections during development in all segments of the visual cortex resulting in complete loss of form vision.

UN CONTRACT OR GRANT NUMBERS: EY04976EYNEI; RR00165RRNCRR
UN MEDLINE ACCESSION NUMBER: 92088494

5 of 13

I TITLE: Luteinizing hormone sensitivity to naloxone in maturing male

chimpanzees.

U AUTHOR(S): Blank-MS; Murphy-JR

O SOURCE (BIBLIOGRAPHIC CITATION): Brain-Res-Bull. 1991 Aug; 27(2): 241-5

SSN INTERNATIONAL STANDARD SERIAL NUMBER: 0361-9230

A LANGUAGE OF ARTICLE: ENGLISH

B ABSTRACT: We have systematically investigated the involvement of endogenous opioids in gonadotropin secretion during primate sexual maturation by examining LH/FSH responses to gonadotropin-releasing hormone (GnRH) and changes in LH secretion during infusions of saline or naloxone, an opiate antagonist, in ten male chimpanzees between one and nine years of age. Animals were anesthetized with ketamine (10 mg/kg) and injected or infused IV with GnRH, naloxone or saline. Circulating levels of serum LH were elevated to the same extent (approximately 400%) in response to GnRH (100 micrograms) in animals 1-5 years old (juvenile) and in animals 6-9 years old (pubertal). No differences were noted between the two groups in GnRH-stimulated levels of serum FSH. During treatment with naloxone (0.14 mg/kg bolus followed by 0.2 mg/kg/h maintenance infusion for 3 h), serum LH levels in pubertal animals were significantly ($p < 0.05$) elevated by as much as 95% over LH levels found during treatment with saline. Juvenile animals, on the other hand, failed to demonstrate significant increases in serum LH following naloxone at the doses tested. A strong correlation ($r = .84$) was found between circulating testosterone and serum LH levels during naloxone treatment. These data indicate that opioid inhibition of LH secretion can be reversed by naloxone only when puberty is reached in chimpanzees and suggest an alteration in opioid regulation of GnRH near the time of puberty. The strong correlation between testosterone levels and LH responses to naloxone suggests that steroids may participate in the maturation of opioid control of LH during puberty of nonhuman primates.

N CONTRACT OR GRANT NUMBERS: HD15073HDNICHD; RR00165RRNCRR

N MEDLINE ACCESSION NUMBER: 92076249

6 of 13

I TITLE: Formation of a new social group of unfamiliar female rhesus monkeys affects the immune and pituitary adrenocortical systems.

U AUTHOR(S): Gust-DA; Gordon-TP; Wilson-ME; Ahmed-Ansari-A; Brodie-AR; McClure-HM

O SOURCE (BIBLIOGRAPHIC CITATION): Brain-Behav-Immun. 1991 Sep; 5(3): 296-307

SSN INTERNATIONAL STANDARD SERIAL NUMBER: 0889-1591

A LANGUAGE OF ARTICLE: ENGLISH

B ABSTRACT: Social stress associated with the formation of a new group of rhesus monkeys resulted in increased basal cortisol secretion and significant decreases in immunological parameters. Eight adult female rhesus monkeys, all of which had been raised in social groups, but with no common social history, were simultaneously introduced into an outdoor enclosure along with an adult male. Behavioral data were collected during the introduction and over 9 weeks hereafter. Blood samples were collected prior to and at intervals for 9 weeks following formation. The establishment of a dominance hierarchy, apparent within 48 h, was accomplished with no serious fighting and a complete absence of wounding or trauma. Overall, the group showed a significant increase in cortisol and a significant decrease in the absolute number of total lymphocytes and CD4+ and CD8+ T cells at 24 h postformation, but not thereafter. However, when partitioned into high and low dominance rank, differences in CD4+ and CD8+ cells were evident for up to 9 weeks with low ranking subjects showing significantly lower values. The housing condition of the subjects immediately prior to introduction, either indoors in individual caging or outdoors in

0 SOURCE (BIBLIOGRAPHIC CITATION): J-Pharmacol-Exp-Ther. 1992 Sep; 262(3):

07-15

ISSN INTERNATIONAL STANDARD SERIAL NUMBER: 0022-3565

LA LANGUAGE OF ARTICLE: ENGLISH

AB ABSTRACT: The behavioral effects of cocaine (0.03-3.0 mg/kg i.v.) were determined in squirrel monkeys (*Saimiri sciureus*) trained to respond under a fixed-interval 300-sec schedule of stimulus termination. A session consisted of 3 consecutive fixed-interval components, each followed by a 60-sec timeout. Graded doses of cocaine were injected during selected timeout periods using a cumulative-dosing procedure. Subsequently, two dopamine D2-selective antagonists, spiperone and raclopride, and a D1-selective antagonist, SCH 23390, were administered chronically for a 2-week period. Due to pronounced time course differences, raclopride and SCH 23390 were infused continuously via osmotic minipump, and spiperone was administered i.m. twice per week. Spiperone and raclopride markedly suppressed responding during the 2-week period. When the effects of cocaine were redetermined 3 days after spiperone or 1 day after raclopride administration was terminated, there was a parallel leftward shift in the dose-effect curve, indicating enhanced sensitivity to cocaine. Three days later, sensitivity to cocaine had changed and was similar to that obtained before chronic drug administration. In contrast, SCH 23390 did not alter sensitivity to cocaine after chronic administration was terminated, even though it did attenuate the behavioral effects of cocaine as effectively as spiperone and raclopride. Chronic administration of spiperone did not alter sensitivity to nisoxetine, a norepinephrine uptake inhibitor, or quipazine, a serotonin agonist. The acute administration of spiperone in combination with cocaine also differed markedly from nisoxetine and quipazine. The pronounced rate-decreasing effect of spiperone was attenuated by cocaine in a dose-dependent manner, but not by nisoxetine or quipazine. (ABSTRACT TRUNCATED AT 250 WORDS)

AN MEDLINE ACCESSION NUMBER: 92407809

3 of 15

TI TITLE: Induction of transient neurological dysfunction in baboons by platelet microemboli.

AU AUTHOR(S): Kessler-C; Kelly-AB; Suggs-WD; Weissman-JD; Epstein-CM; Hanson-SR; Harker-LA

SO SOURCE (BIBLIOGRAPHIC CITATION): Stroke. 1992 May; 23(5): 697-702

ISSN INTERNATIONAL STANDARD SERIAL NUMBER: 0039-2499

LA LANGUAGE OF ARTICLE: ENGLISH

AB ABSTRACT: BACKGROUND AND PURPOSE: To investigate experimental mechanisms of reversible cerebral dysfunction, we produced transient focal cerebral ischemia in five baboons by unilateral perfusion of internal carotid territories with platelet microemboli generated endogenously. METHODS: Platelet microemboli were formed by incorporating segments of Dacron vascular graft for 1 hour as unilateral carotid arterio-arterial shunts. Platelet embolization was assessed by ultrasonography and isotopic imaging; cerebral function was evaluated by measurements of somatosensory evoked potentials and clinical motor performance. RESULTS: Platelet microemboli, detected by transcranial Doppler ultrasonography, accumulated rapidly in the shunted carotid hemispheric territory. Indium-111-labeled platelets reached a maximum value of $3.2 \pm 0.8 \times 10^9$ platelets in the dependent hemisphere of five animals after 20 minutes of carotid blood flow through the grafts when measured in real time by continuous scintillation camera imaging. The retained ^{111}In -platelet microemboli cleared from the cerebral vasculature within 1 hour after removing the grafts. Corresponding blood markers of in vivo thrombus formation, beta-thromboglobulin, platelet factor 4, and fibrinopeptide A, increased

eightfold to 20-fold after incorporating graft segments and normalized within 1 hour after removing the grafts. Coincidentally, focal neurological function was temporarily impaired, as shown by the ipsilateral loss of somatosensory evoked potentials 5 minutes after initiating platelet microembolization, with restoration 1 hour after removing the grafts in five baboons, and contralateral hemiparesis in two recovered baboons, with complete resolution by 24 hours. CONCLUSIONS: Endogenously generated platelet microemboli accumulate transiently in the dependent cerebral circulation and produce corresponding focal neurological dysfunction that resolves within hours after microembolization. IN MEDLINE ACCESSION NUMBER: 92254214

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TI TITLE: Genital swelling in females of the monogamous gibbon, *Hylobates* (H.) lar.

AU AUTHOR(S): Dahl-JF; Nadler-RD

SO SOURCE (BIBLIOGRAPHIC CITATION): Am-J-Phys-Anthropol. 1992 Sep; 89(1): 01-8

ISSN INTERNATIONAL STANDARD SERIAL NUMBER: 0002-9483

LA LANGUAGE OF ARTICLE: ENGLISH

AB ABSTRACT: Cyclical changes in the vulvae of five adult lar gibbons (*Hylobates* [H.] lar) were studied and compared with those of eight lowland gorillas. The results reveal that the gibbons have relatively conspicuous and specialized sexual swellings that alter shape and appearance during the ovarian cycle. At maximum extent, the genital swellings of gorillas are relatively and absolutely smaller than those of gibbons, and lack the distinctive coloration seen in the genital swellings of the smaller apes. We conclude that the female gibbon's sexual swelling is a far more conspicuous and effective signal of estrus status than that of the gorilla, and that this is not explicable in terms of allometry. Previous investigators have pointed to one-male mating systems, monogamous pair-bonding, or an arboreal habitat as reasons that some primates should have less conspicuous signals of estrus than others. Our findings for the gibbon are the reverse of these predictions, and indicate that sexual selection other than by intermale competition for estrous females is implicated in the ultimate causation of the gibbon's swelling. The adaptive value and significance of the female gibbon's sexual signals remain unclear, however.

IN MEDLINE ACCESSION NUMBER: 92411321

5 of 15

TI TITLE: Hormone levels and anogenital swelling of female chimpanzees as a function of estrogen dosage in a combined oral contraceptive.

AU AUTHOR(S): Nadler-RD; Dahl-JF; Collins-DC; Gould-KG

SO SOURCE (BIBLIOGRAPHIC CITATION): Proc-Soc-Exp-Biol-Med. 1992 Oct; 201(1): 13-9

ISSN INTERNATIONAL STANDARD SERIAL NUMBER: 0037-9727

LA LANGUAGE OF ARTICLE: ENGLISH

AB ABSTRACT: A combined oral contraceptive consisting of ethinyl estradiol (EE2) in three dosages (50, 100, and 400 micrograms) and norethindrone (0.5 mg) was given to female chimpanzees to determine the effect on endogenous sex hormone levels and anogenital swelling. Serum levels of EE2 increased with increasing dosages of EE2, estradiol decreased, and luteinizing hormone, progesterone and testosterone were maintained at approximately midfollicular phase levels. Urinary levels of EE2 glucuronide increased with the increasing dosages of EE2, whereas estrone and pregnanediol glucuronide were essentially undetectable. The cyclic increase in female anogenital swelling was abolished

I TITLE: Development of self-recognition in chimpanzees (Pan troglodytes).
U AUTHOR(S): Lin-AC; Bard-KA; Anderson-JR
O SOURCE (BIBLIOGRAPHIC CITATION): J-Comp-Psychol. 1992 Jun; 106(2): 120-7
SSN INTERNATIONAL STANDARD SERIAL NUMBER: 0735-7036

A LANGUAGE OF ARTICLE: ENGLISH

B ABSTRACT: Chimpanzees (Pan troglodytes) demonstrate the ability to recognize themselves in mirrors, yet investigations of the development of self-recognition in chimpanzees are sparse. Twelve young chimpanzees, grouped by age, were given mirror exposure and tested for self-recognition and contingent movement. All 6 juveniles, 4 and 5 years old, exhibited mirror-guided, mark-directed behavior and clear evidence of self-recognition. In contrast, among the infants, only the oldest group of 2 1/2-year-olds exhibited clear evidence of self-recognition. All chimpanzees exhibited both self-directed behaviors and contingent movements. These results suggest that self-recognition occurs at a slightly older age in chimpanzees than in human infants. In humans, self-recognition is linked with other cognitive abilities. The results conform to the general pattern that great apes exhibit many cognitive skills comparable to those of 2-year-old humans.

N MEDLINE ACCESSION NUMBER: 92289208

11 of 15

I TITLE: 23rd Bethesda conference: access to cardiovascular care. Task Force
: Influence of private sector parties on access to cardiovascular care.

U AUTHOR(S): DeMaria-AN; Hutter-AM Jr; Hatlie-MJ; Schiffer-HM; Verkes-L

O SOURCE (BIBLIOGRAPHIC CITATION): J-Am-Coll-Cardiol. 1992 Jun; 19(7):
469-77

SSN INTERNATIONAL STANDARD SERIAL NUMBER: 0735-1097

A LANGUAGE OF ARTICLE: ENGLISH

N MEDLINE ACCESSION NUMBER: 92276679

12 of 15

I TITLE: Competition between an aphakic and an occluded eye for territory in striate cortex of developing rhesus monkeys: cytochrome oxidase histochemistry in layer 4C.

U AUTHOR(S): Tigges-M; Boothe-RG; Tigges-J; Wilson-JR

O SOURCE (BIBLIOGRAPHIC CITATION): J-Comp-Neurol. 1992 Feb 8; 316(2): 173-86

SSN INTERNATIONAL STANDARD SERIAL NUMBER: 0021-9967

A LANGUAGE OF ARTICLE: ENGLISH

B ABSTRACT: Monkey models were used to examine the effects of competition for cortical territory between two eyes which were deprived simultaneously, but each eye experienced a different type of deprivation. We wanted to determine whether, under this condition of binocular unequal deprivation, the postnatal process of segregation into ocular dominance columns proceeds according to the same rules as those that apply to competition between a deprived and an undeprived fellow eye. Our models involved surgical removal of the natural lens from one eye in newborn rhesus monkeys. The resulting aphakia was corrected optically to a near point with extended-wear contact lenses. The fellow eyes were either left unmanipulated or occluded with opaque contact lenses for varying periods during the day. At the end of the rearing period, some monkeys from each experimental group had either one eye enucleated or sustained injury to the retinal ganglion cells of one eye. The histochemical reaction for cytochrome oxidase was used to reveal the widths of ocular dominance columns in layer 4C of striate cortex in these monkeys. Under all experimental conditions, the axons related to the two eyes occupied segregated fields. The amount of cortical territory related to the aphakic, optically corrected eye depended on

ne manipulations of the fellow eye. In competition with an unmanipulated fellow eye, the aphakic eye's territory was greatly reduced. In competition with a part-time occluded eye, its territory was reduced to a lesser degree, depending on the duration of the occlusion. In competition with a continuously occluded eye, however, the space related to the aphakic, optically corrected eye was slightly greater than that related to the occluded eye. Since neither the aphakic nor the continuously occluded eye receives normal visual input, they are both impaired. Therefore, they may compete on an almost equal basis for synaptic territory in layer 4C of striate cortex. Moreover, it is likely that activities originating in the aphakic and the continuously occluded eye are asynchronous, and that this condition is sufficient to drive the postnatal segregation of inputs from the two deprived eyes.

V MEDLINE ACCESSION NUMBER: 92242569

13 of 15

I TITLE: The external genitalia of female gibbons, *Hylobates* (H.) lar.

J AUTHOR(S): Dahl-JF; Nadler-RD

O SOURCE (BIBLIOGRAPHIC CITATION): *Anat-Rec.* 1992 Apr; 232(4): 572-8

SSN INTERNATIONAL STANDARD SERIAL NUMBER: 0003-276X

A LANGUAGE OF ARTICLE: ENGLISH

B ABSTRACT: The external genitalia of one perimenarcheal and five adult female white handed-gibbons (*Hylobates* (H.) lar) were examined to clarify their gross anatomy. It was found that the vulval structures were complex and exhibited inter-individual variation in arrangement. This complexity appears to result from an ontogenetic process by which the tissues of the vaginal rim (the labia minora) bud-off and extrude extensions toward the vagina immediately prior and subsequent to menarche. Two of these lobular structures surround the urethral meatus and constitute a urethral eminence. The tissues of the vulva, including the clitoris with associated prepuce and frenulum and vestigial labia majora, undergo cycles of tumescence and detumescence during intermenstrual intervals. The complex form of the external genitalia and the presence of a swelling cycle are unusual for a monogamous species, are contrary to current applications of sexual selection theory, and raise questions about the significance of mate choice in hominoid evolution.

N MEDLINE ACCESSION NUMBER: 92206625

14 of 15

I TITLE: Axon terminals on Betz cell somata of area 4 in rhesus monkey throughout adulthood.

J AUTHOR(S): Tigges-J; Herndon-JG; Peters-A

O SOURCE (BIBLIOGRAPHIC CITATION): *Anat-Rec.* 1992 Feb; 232(2): 305-15

SSN INTERNATIONAL STANDARD SERIAL NUMBER: 0003-276X

A LANGUAGE OF ARTICLE: ENGLISH

B ABSTRACT: Previous work in our laboratory demonstrated an age-related decline in the size of Betz cell somata in cortical area 4 of the adult rhesus monkey brain. The present study was conducted to determine whether changes might also occur in the axon terminals upon these cortical cells. Tissue from area 4 was collected from seven rhesus monkeys and prepared for electron microscopy. The ages of the monkeys ranged from 5 to 35 years, covering the entire adult life span of this species. A total of 140 Betz cell profiles (20 per monkey) were examined. Measurements of these profiles confirmed our earlier finding of a decline in the perimeters of Betz cell somata with advancing age. The 1,540 axon terminals upon these cells, however, remained unchanged in size and length of membrane apposition, as well as in their number of mitochondria throughout the adult life (greater than or equal to 5 years) of the rhesus

onkey. In addition, the total number of axon terminals on Betz cells did not change with age. Because the axosomatic terminals showed no age-associated changes, the material was used to calculate parametric characteristics of Betz cells and associated terminals. Betz cell somata of the rhesus monkey were estimated to have a mean membrane surface area of 5,700 microns². Axosomatic terminals on Betz cell somata had a mean appositional area of about 3.33 microns² and covered about 15% of the somal surface. Thus, on average, each Betz cell appeared to receive approximately 260 axosomatic terminals. There were also some conspicuous age-associated changes in the motor cortex that were not quantified. These included an accumulation of lipofuscin and the presence of a novel inclusion body in the somata of Betz cells. Age-related occurrences in the neuropil included the degeneration of axons and their myelin, membrane-bound holes, and neuritic (senile) plaques.

IN MEDLINE ACCESSION NUMBER: 92189190

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TI TITLE: A method for quantitating motor deficits in a nonhuman primate following MPTP-induced hemiparkinsonism and co-grafting.

AU AUTHOR(S): Ellis-JE; Byrd-LD; Bakay-RA

SO SOURCE (BIBLIOGRAPHIC CITATION): Exp-Neurol. 1992 Mar; 115(3): 376-87

SSN INTERNATIONAL STANDARD SERIAL NUMBER: 0014-4886

LA LANGUAGE OF ARTICLE: ENGLISH

AB ABSTRACT: This report describes a nonhuman primate model of MPTP-induced hemiparkinsonism and the recovery of motor function following co-grafting of adrenal medullary tissue and peripheral nerve into the lesioned area of the brain. A rhesus monkey (*Macaca mulatta*) trained to perform a complex, discrete-trial, operant task served as the subject. After behavioral performance on the task had stabilized and a high level of accuracy was maintained, 0.4 mg/kg MPTP was infused acutely via the left carotid artery to produce a marked impairment of movement of the right arm. Eighteen weeks later, medullary tissue from the left adrenal gland was grafted along with peripheral nerve into the left caudate nucleus. During the original baseline training condition, right- and left-hand performances were comparable on all dependent measures. However, right-hand performance was severely impaired following unilateral MPTP treatment, and left-hand performance was unaffected. Right-hand performance recovered only after adrenal medullary tissue was transplanted with peripheral nerve into the brain. Neuroanatomical analysis of brain tissue showed the anticipated neuronal loss in the left substantia nigra due to MPTP administration and evidence of adrenal medullary cell survival in the area of the co-graft. The data demonstrate that the rhesus monkey and the behavioral task developed during this study can be efficacious in characterizing the effects of MPTP on psychomotor function and in assessing the outcome of new strategies for treating Parkinson's disease.

IN MEDLINE ACCESSION NUMBER: 92164757

B ABSTRACT: Our findings indicate that preattentive processes, such as the filling in of homogeneously colored areas, discrete dots, or bars across the blind spot, take into account both the color and the form that stimulate the retina around the optic disk. Perceptual completion of the "junction" of two opposite colors facing each other on opposite sides of the blind spot was resolved by simultaneous segregation of the two colors at the location of a filled-in perpendicular line that suggested a boundary separating the two colors. Orientation preference and relative salience of one color versus the other determined which color was perceptually completed in a forced-choice situation that involved perceptual completion at the intersection of a cross formed by bars of opposite colors. A 1-min exposure to these stimuli presented an ambiguous situation for perceptual completion of either color within the blind spot, and resulted in a perceptual "flip-flop" from one color to the other, much like the phenomenon that occurs in figure reversal. Instructions to speed up this reversal process led to a fivefold reduction in latency to first reversal.

N MEDLINE ACCESSION NUMBER: 93165474

2 of 7

I TITLE: Testicle size of orang-utans in relation to body size.

U AUTHOR(S): Dahl-JF; Gould-KG; Nadler-RD

O SOURCE (BIBLIOGRAPHIC CITATION): Am-J-Phys-Anthropol. 1993 Feb; 90(2): 29-36

SSN INTERNATIONAL STANDARD SERIAL NUMBER: 0002-9483

A LANGUAGE OF ARTICLE: ENGLISH

B ABSTRACT: Few data are available for assessing the relative testicle size of orang-utans, *Pongo pygmaeus*, so measures were obtained for 31 individuals of varying age. It was shown that the volume of the testicles, calculated from in situ measures of testicle length and breadth, closely approximates testicle weight when multiplied by the specific gravity of solid tissue. Growth curves for body weight and data published for wild specimens were evaluated to obtain the weight most characteristic of male *Pongo*, and the ratio of testicle weight to body weight was calculated. The mean ratio for individuals with fully adult stature is 0.034, similar to but smaller than that of humans at about 0.050, and larger than the ratios reported for 5 gorillas at 0.013. The testicles mature faster than the body, however, so the mean ratio for young adult orang-utans is about 0.056 and resembles the ratio for humans more closely than the full adults. The differences between the ratios for a monogamous gibbon species, orang-utans, and humans is accounted for when testicle size relative to the weight of the female is considered. This is consistent with a sperm dilution effect produced by variation in the size of the female reproductive tract. The small relative testicle size of the gorilla is anomalous and requires verification as does the application of female size to scale the

esticles.

N MEDLINE ACCESSION NUMBER: 93158684

3 of 7

I TITLE: Oestradiol negative feedback inhibition on LH secretion during lactation is prolonged in adolescent primiparous rhesus monkeys.

U AUTHOR(S): Wilson-ME

O SOURCE (BIBLIOGRAPHIC CITATION): J-Endocrinol. 1993 Jan; 136(1): 127-36

SSN INTERNATIONAL STANDARD SERIAL NUMBER: 0022-0795

A LANGUAGE OF ARTICLE: ENGLISH

B ABSTRACT: Lactational infertility in rhesus monkeys is significantly prolonged in adolescent primiparous compared with adult multiparous mothers. In order to determine if this longer period of infertility for young mothers is the result of a greater sensitivity to nursing-induced inhibition of LH release either by enhanced oestradiol negative feedback or a direct non-gonadally mediated suppression, the effects of periodic administration of oestradiol on serum LH concentrations in nursing ovariectomized adolescent primiparous (Prp; n = 5) and adult multiparous (Mlt; n = 7) mothers was assessed. Females were treated every 5-6 weeks with a 21-day time-release capsule of oestradiol which produced serum concentrations of approximately 250, 90 and 45 pmol/l by +6, +13 and +20 days after treatment. Thus, the design permitted assessment of LH and prolactin concentrations under a regime of 21 days of decreasing oestradiol levels followed by 2-3 weeks of no oestradiol treatment. Females were studied from week 3 to week 42 post partum and oestradiol treatment occurred during weeks 5, 11, 21, 26, 31, 36 and 41. Behavioural observations indicated that the amount of time mothers nursed their offspring decreased in a similar fashion throughout the lactational period for both Prp and Mlt females. LH concentrations under the 'no oestradiol' conditions progressively increased throughout lactation reaching maximum levels by week 36 post partum in a similar manner for both Prp and Mlt mothers. These data suggest that differences in fertility between adolescent and adult nursing mothers observed previously cannot be attributed to a difference in a direct non-gonadally-mediated affect on LH. With respect to oestradiol negative feedback inhibition of LH, oestradiol treatment effectively suppressed serum LH concentrations at all points during lactation up to week 31, at which time LH concentrations were maximally suppressed in both Prp and Mlt mothers at +6 days after treatment but by day +13 LH values were significantly higher in Mlt females. After oestradiol treatment during week 36, LH values were again maximally suppressed on day +6 in Prp females but not in Mlt females. However, the response of serum LH after oestradiol treatment during week 41 was similar between Prp and Mlt females at all sampling points. (ABSTRACT TRUNCATED AT 400 WORDS)

N MEDLINE ACCESSION NUMBER: 93155585

4 of 7

I TITLE: Behavioral and physiological response of juvenile sooty mangabeys to reunion with their mothers following a year's absence.

U AUTHOR(S): Gust-DA; Gordon-TP; Brodie-AR; McClure-HM

O SOURCE (BIBLIOGRAPHIC CITATION): Dev-Psychobiol. 1992 Dec; 25(8): 613-22

SSN INTERNATIONAL STANDARD SERIAL NUMBER: 0012-1630

A LANGUAGE OF ARTICLE: ENGLISH

B ABSTRACT: The return of 6 juvenile mangabey monkeys to their social group following an absence of a year resulted in increased basal cortisol secretion in both the offspring and the mothers and in significant decrements in the absolute number of lymphocyte subsets for the offspring. Six 9-month-old sooty

mangabeys were removed from their socially housed mothers, subsequently peer
cused, and returned to the maternal social group 1 year later. Offspring
showed a significant increase in cortisol levels 24 hr following reunion (48
+/- 6%) and this difference persisted through 1 month, while the mothers showed
a significant increase only at the 24-hr sample point (18 +/- 3%). Moreover,
the offspring, but not the mothers, showed a significant decrease in lymphocyte
subsets which were evident through the 1-month sample point. Behavioral data
revealed a significant positive correlation between the percent of total scan
samples offspring were with their mothers (proximity, contact, huddle) the day
of return and the offspring's percent change from baseline in total T cells 24
hr later, $r = 0.84$. All mother-offspring pairs with the exception of one
exhibited frequent affiliative behaviors toward one another by 6 days following
the return. These data demonstrate that the reunion of juvenile mangabeys with
their mothers after a year's absence is an acute stressor for the mothers and a
relatively longer term stressor for the offspring, and that behavioral
interactions which characterize the return of individual subjects to the natal
group can predict acute physiological responses.

N MEDLINE ACCESSION NUMBER: 93138265

5 of 7

I TITLE: The simian immunodeficiency virus infected macaque: a model for
pediatric AIDS.

U AUTHOR(S): McClure-HM; Anderson-DC; Ansari-AA; Klumpp-SA

O SOURCE (BIBLIOGRAPHIC CITATION): Pathol-Biol-Paris. 1992 Sep; 40(7):
94-700

SSN INTERNATIONAL STANDARD SERIAL NUMBER: 0369-8114

A LANGUAGE OF ARTICLE: ENGLISH

B ABSTRACT: Maternal-to-infant transmission of simian immunodeficiency virus
(SIV) has been demonstrated in the rhesus macaque following experimental
infection of pregnant rhesus monkeys, either parenterally or by inoculation of
virus into the amniotic fluid. Virus infection occurred in 3 of 12 (25%) rhesus
infants born to mothers with SIV infection induced by parenteral inoculation of
virus during gestation. However, these infants did not become seropositive or
virus positive until they were 9-15 months old, suggesting that virus infection
most likely occurred as the result of breast feeding. Infection has also been
demonstrated in one rhesus infant following virus inoculation into the amniotic
fluid during late gestation. These observations support the increasing evidence
that intrapartum or postpartum infection may be important mechanisms for the
maternal-infant transmission of HIV. The SIV-infected macaque should prove to
be a useful model to evaluate the timing and mechanisms of lentivirus infection
in infants, to determine maternal factors associated with transmission to the
 fetus or infant, and to evaluate therapeutic regimens for the prevention or
treatment of pediatric AIDS.

N MEDLINE ACCESSION NUMBER: 93125986

6 of 7

I TITLE: Emotional stress and eyewitness memory: a critical review.

U AUTHOR(S): Christianson-SA

O SOURCE (BIBLIOGRAPHIC CITATION): Psychol-Bull. 1992 Sep; 112(2): 284-309

SSN INTERNATIONAL STANDARD SERIAL NUMBER: 0033-2909

A LANGUAGE OF ARTICLE: ENGLISH

B ABSTRACT: The eyewitness literature often claims that emotional stress
leads to an impairment in memory and, hence, that details of unpleasant
emotional events are remembered less accurately than details of neutral or
everyday events. A common assumption behind this view is that a decrease in