

YASEMIN AYDIN

ASSOC. PROF.

Email : yastun@istanbul.edu.tr

Office Phone : [+90 212 455 5700](tel:+902124555700) Extension: 15105



Learning Knowledge

Doctorate 2006 - 2012	İstanbul Üniversitesi, Institute of Graduate Studies In Sciences, Biyoloji, Turkey
Post Graduate 2002 - 2006	İstanbul Üniversitesi, Institute of Graduate Studies In Sciences, Biyoloji, Turkey
Under Graduate 1998 - 2002	İstanbul Üniversitesi, Faculty of Science, Biyoloji, Turkey

Foreign Languages

English, B2 Upper Intermediate

Certificates, Courses and Trainings

Education Management and Planning, ATCC cell culture seminar, LGC Standarts, 2012
Education Management and Planning, Deney Hayvanları Kullanım Kursu, İ.Ü. DETAE Deney Hayvanları Biyolojisi ve Biyomedikal Uygulama Teknikleri Anabilim Dalı, 2011
Education Management and Planning, Eppendorf Pipette Clinic & Centrifuges Clinic Katılım Kursu, Eppendorf, 2011
Education Management and Planning, Deney Hayvanları Uygulama ve Etik kursu, İ.Ü. Cerrahpaşa Tıp Fakültesi Deney Hayvanları Etik Kurulu, 2005

Dissertations

Doctorate, Poliklorlu Bifeniller ve Vitamin E'nin TM3 Leydig Hücreleri Üzerine Etkileri, Istanbul University, Faculty of Science, Biyoloji, 2012
Post Graduate, Mytilus Galloprovincialis Lamarck, 1819'in Hepatopankreasındaki Fonksiyonel Hücrelerin Yapısı Üzerine Bir Araştırma , Istanbul University, Faculty of Science, Biyoloji, 2006

Academic Titles / Tasks

Assistant Professor 2018 - Continues	Istanbul University, Faculty of Science, Department of Biology
---	--

Supported Projects

1. ORTA YILMAZ B., AYDIN Y., ERKAN M. B. , YILDIZBAYRAK N., Project Supported by Higher Education Institutions, Glisidamid ile uyarılmış embriyonik fibroblast hücrelerinde oluşan toksisiteye hesperidin ve vitamin C'nin etkisi, 2018 - Continues
2. Aydın Y., Çakır E., Project Supported by Higher Education Institutions, Klorpirifosun Sertoli Hücrelerinde hücre canlılığı ve genotoksisite üzerindeki etkilerinin incelenmesi, 2020 - 2021
3. AYDIN Y., Project Supported by Higher Education Institutions, Akrilamid ve metaboliti glisidamid Leydig ve Sertoli hücrelerinde antioksidan savunma sistemi ve steroidogenez üzerine etkileri, 2020 - 2020
4. AYDIN Y., DİKBASAN Y. Ü. , Project Supported by Higher Education Institutions, Furanın Leydig hücrelerinde sitotoksisite oksidatif hasar ve apoptoz üzerindeki etkilerinin incelenmesi, 2018 - 2019
5. ORTA YILMAZ B., YILDIZBAYRAK N., AYDIN Y., Project Supported by Higher Education Institutions, Evidence of acrylamide and glycidamideinduced oxidative stress and apoptosis in Leydig and Sertoli cells, 2017 - 2018
6. AYDIN Y., Project Supported by Higher Education Institutions, The toxic effects of polychlorinated biphenyl Aroclor 1242 on Tm3 Leydig cells, 2017 - 2018
7. ERKAN M. B. , YILDIZBAYRAK N., AYDIN Y., TOPÇUL M. R. , ORTA YILMAZ B., ÖZ G., Project Supported by Higher Education Institutions, Akrilamid ve Glisidamid'in Leydig hücrelerinde apoptotik ve steroidogenik yolak üzerinde in vitro etkileri, 2015 - 2018
8. Sesal N. C. , Karaltı İ., Durdağı S., Salan Ü., Aydın Y., Çobanoğlu G., Erkan M. B. , Erman B., TÜBİTAK - AB COST Project, Acne Vulgaris Hastalığının Etmenlerinin Propionibacterium Acnes Bakterisinin Liken Türlerinden İzole Edilen Sekonder Metabolitler Kullanılarak Biyofilm Oluşturulmasının Engellenmesi, 2015 - 2018
9. ORTA YILMAZ B., AYDIN Y., Project Supported by Higher Education Institutions, Co-exposure to sodium arsenite and sodium fluoride induced cellular and oxidative damage in Sertoli cells, 2017 - 2017
10. ERKAN M. B. , KARA-ERTEKİN S., ŞEN E., AYDIN Y., Project Supported by Higher Education Institutions, The Effects Of Vitamin E On Genistein Induced Oxidative Damage On Tm3 Leydig Cells, 2017 - 2017
11. ERKAN M. B. , ELDEM V., ORTA YILMAZ B., AYDIN Y., Project Supported by Higher Education Institutions, Hamsi balığı (Engraulis encrasicolus L., 1758)' nın genom karakteri ve kompozisyonunun araştırılması, 2014 - 2017
12. AYDIN Y., ORTA YILMAZ B., Project Supported by Higher Education Institutions, Hamile sıçanlarda akrilamid, arsenik ve florürün erkek yavru steroidogenez profiline etkileri, 2013 - 2017
13. ERKAN M. B. , AYDIN Y., Project Supported by Higher Education Institutions, Attenuating effect of vitamin e and genistein on polychlorinated biphenyl (aroclor 1242) induced oxidative damage and changes in steroidogenic enzymes in Leydig cells, 2015 - 2016
14. ERKAN M. B. , ORTA YILMAZ B., AYDIN Y., Project Supported by Higher Education Institutions, Antioxidant activity of Genistein on polychlorinated biphenyls (Aroclor 1260) Induced toxicity in TM3 cell line, 2013 - 2016
15. ERKAN M. B. , AYDIN Y., Project Supported by Higher Education Institutions, Morphological and histochemical examination of male and female gonads in Homarus gammarus (L. 1758), 2013 - 2016
16. AYDIN Y., Project Supported by Higher Education Institutions, EFFECT OF FLUORIDE ON LEYDIG CELL VIABILITY, CYTOTOXİCİTY AND OXIDATIVE DAMAGE IN VITRO, 2015 - 2015
17. AYDIN Y., Project Supported by Higher Education Institutions, Effects of Acrylamide and

Glycidamide on Antioxidant Systems and Steroidogenic Enzymes on TM4 Sertoli Cell, 2014 - 2014

18. Aydın Y., İnceli M., Project Supported by Higher Education Institutions, Hibernasyon periyodunda kurbağa midesinde leptin reseptörünün saptanması, 2011 - 2012
19. Aydın Y., Erkan M. B. , Project Supported by Higher Education Institutions, Poliklorlu bifeniller ve Vitamin E nin TM3 Leydig hücreleri üzerine etkileri, 2008 - 2012
20. Aydın Y., Erkan M. B. , Project Supported by Higher Education Institutions, Mytilus galloprovincialis Lamarck 1819 in hepatopankreasındaki fonksiyonel hücreler üzerine bir araştırma , 2004 - 2006

Awards

1. ERKAN M. B. , AYDIN Y., GÜZELDEMİRCİ N., ERKAN M. B. , AYDIN Y., ALTUĞ G., ORTA YILMAZ B., ERYILMAZ L., ÖZTÜRK B., Başarılı Araştırmacı Ödülü, İstanbul Üniversitesi Bilimsel Araştırma Projeleri Birimi, May 2014
2. AYDIN Y., Tübitak Bilimsel Yayın Teşvik Ödülü, Tübitak, October 2010
3. ASLAN E., OSKAY Ü., ERKAN M. B. , AYDIN Y., Tübitak Bilimsel Yayın Teşvik Ödülü, Tübitak, May 2009

Articles Published in Journals That Entered SCI, SSCI and AHCI Indexes

1. **Vitamin C inhibits glycidamide-induced genotoxicity and apoptosis in Sertoli cells**
Orta Yılmaz B., Yıldızbayrak N., Aydın Y.
Journal Of Biochemical And Molecular Toxicology, vol.1, pp.1-11, 2020 (Journal Indexed in SCI)
2. **Comparison of endometrial prostanoid profiles in three infertile subgroups: the missing part of receptivity?**
Demiral Keleş I., Ülgen E., Erkan M. B. , Çelik S. E. , Aydın Y., Önem A. N. , Kandemir H., Arslanoğlu T., Apak M. R. , Sezerman U., et al.
FERTILITY AND STERILITY, vol.113, pp.670-679, 2020 (Journal Indexed in SCI)
3. **Acrolein exerts a genotoxic effect in the Leydig cells by stimulating DNA damage-induced apoptosis**
Yıldızbayrak N., Orta-Yılmaz B., Aydın Y., Erkan M.
ENVIRONMENTAL SCIENCE AND POLLUTION RESEARCH, 2020 (Journal Indexed in SCI)
4. **Protective effects of curcumin on biochemical and molecular changes in sodium arsenite-induced oxidative damage in embryonic fibroblast cells**
Perker M. C. , Yılmaz B. O. , Yıldızbayrak N., Aydın Y., Erkan M. B.
JOURNAL OF BIOCHEMICAL AND MOLECULAR TOXICOLOGY, vol.33, 2019 (Journal Indexed in SCI)
5. **Evaluation of citrinin-induced toxic effects on mouse Sertoli cells**
Aydın Y., Yılmaz B. O. , Yıldızbayrak N., Korkut A., Kursun M. A. , Irez T., Erkan M.
DRUG AND CHEMICAL TOXICOLOGY, 2019 (Journal Indexed in SCI)
6. **Acrylamide and its metabolite glycidamide can affect antioxidant defenses and steroidogenesis in Leydig and Sertoli cells**
Aydın Y.
TOXICOLOGICAL AND ENVIRONMENTAL CHEMISTRY, vol.100, pp.247-257, 2018 (Journal Indexed in SCI)
7. **Evidence of acrylamide- and glycidamide-induced oxidative stress and apoptosis in Leydig and Sertoli cells**
Yılmaz B., Yıldızbayrak N., Aydın Y., Erkan M. B.
Human and Experimental Toxicology, vol.36, pp.1225-1235, 2017 (Journal Indexed in SCI Expanded)
8. **The toxic effects of polychlorinated biphenyl (Aroclor 1242) on Tm3 Leydig cells**

- Aydin Y., Erkan M.
TOXICOLOGY AND INDUSTRIAL HEALTH, vol.33, pp.636-645, 2017 (Journal Indexed in SCI)
9. **Macroscopic and Microscopic Examination of Seasonal Gonad Change in *Alburnus istanbulensis* (Battalgil, 1941) (Teleostei: Cyprinidae)**
Hamzaoglu E., Ozulug M., Tunalı Y., Erkan M.
TURKISH JOURNAL OF FISHERIES AND AQUATIC SCIENCES, vol.15, 2015 (Journal Indexed in SCI)
10. **Testicular development of male mice offsprings exposed to acrylamide and alcohol during the gestation and lactation period**
Sen E., Tunalı Y., Erkan M.
HUMAN & EXPERIMENTAL TOXICOLOGY, vol.34, pp.401-414, 2015 (Journal Indexed in SCI)
11. **Morphological and histochemical examination of male and female gonads in *Homarus gammarus* (L. 1758)**
Erkan M. B. , Ayun Y.
CENTRAL EUROPEAN JOURNAL OF BIOLOGY, vol.9, pp.37-48, 2014 (Journal Indexed in SCI)
12. **Histology of the androgenic gland in *Eriphia verrucosa* (Forskål, 1775) (Decapoda, Brachyura)**
Erkan M. B. , Tunalı Y., Ekinci S., Kara S.
TURKISH JOURNAL OF ZOOLOGY, vol.34, pp.79-84, 2010 (Journal Indexed in SCI)
13. **MORPHOLOGY OF TESTIS AND VAS DEFERENS IN THE XANTHOID CRAB, *ERIPHIA VERRUCOSA* (FORSKÅL, 1775) (DECAPODA: BRACHYURA)**
Erkan M. B. , Tunalı Y., Balkis H., Oliveria E.
JOURNAL OF CRUSTACEAN BIOLOGY, vol.29, pp.458-465, 2009 (Journal Indexed in SCI)
14. **MALE REPRODUCTIVE SYSTEM MORPHOLOGY AND SPERMATOPHORE FORMATION IN *ASTACUS LEPTODACTYLUS* (ESCHSCHOLTZ, 1823) (DECAPODA: ASTACIDAE)**
Erkan M. B. , Tunalı Y., Sancar-Bas S.
JOURNAL OF CRUSTACEAN BIOLOGY, vol.29, pp.42-50, 2009 (Journal Indexed in SCI)
15. **Seasonal variations in the ovary and testis of *Eriphia verrucosa* (Forskål, 1775) (Crustacea : Decapoda) from Karaburun, SW Black Sea (SC)**
Erkan M. B. , Balkis H., Kurun A., Tunalı Y.
PAKISTAN JOURNAL OF ZOOLOGY, vol.40, pp.217-221, 2008 (Journal Indexed in SCI)
16. **A structural study of functional cells in hepatopancreas of *Mytilus galloprovincialis* Lamarck, 1819**
Tunalı Y., Erkan M. B.
PAKISTAN JOURNAL OF ZOOLOGY, vol.40, pp.109-114, 2008 (Journal Indexed in SCI)

Articles Published in Other Journals

1. **Exposure to Sodium Fluoride via Drinking Water Cause Cytotoxicity and Oxidative Damage in Leydig Cells**
Aydin Y.
TRAKYA UNİVERSİTİ JOURNAL OF NATURAL SCIENCES, vol.18, no.2, pp.115-122, 2017 (Journal Indexed in ESCI)

Book & Book Chapters

1. **in: Molecular Basis and Emerging Strategies for Anti-aging Interventions**
AYDIN Y.
Antiaging Strategies Based on Telomerase Activity, Rizvi S.I., Çakatay U. , Editor, Springer, London/Berlin , Singapour, pp.97-109, 2018
2. **in: Hücre Biyolojisi ve Histoloji**
TUNALI Y.

Plazma Membranı, Hürdağ C., Editor, İstanbul Tıp Kitabevi, İstanbul, pp.1-14, 2016

3. **in: BRS Embriyoloji**

TUNALI Y.

Erkek Üreme Sistemi, İREZ T., ERKAN M., Editor, İstanbul Tıp Kitabevi, İstanbul, pp.180-191, 2016

4. **in: Perspectives in Animal Ecology and Reproduction**

Kara-Ertekin S., Tunalı Y., Erkan M. B.

The effects of Vitamin E on Genistein-Induced Oxidative Damage on TM3 Leydig cells, Gupta V.K., Verma A.K., Singh G.D., Editor, Daya Publishing House, New Delhi, pp.301-314, 2015

5. **Protective role of Vitamin E on Polychlorinated Biphenyl (Aroclor 1260) induced oxidative damage and changes in steroidogenic enzymes in TM3 Leydig cell line**

Tunalı Ayun Y., Erkan M.

in: Perspectives In Animal Ecology And Reproduction Vol.9, Gupta V. K., Verma A. K., Singh G. D., Editor, Daya Publishing House, New Delhi, pp.490-509, 2013

6. **in: Perspectives In Animal Ecology And Reproduction Vol.9**

Tunalı Ayun Y., Orta B., Erkan M.

Antioxidant activity of Genistein on Polychlorinated Biphenyl (Aroclor 1260) induced toxicity in TM3 cell line, Gupta V. K., Verma A. K., Singh G. D., Editor, Daya Publishing House, New Delhi, pp.467-489, 2013

7. **in: Perspectives In Animal Ecology And Reproduction Vol.9**

Aydın Y., Orta Yılmaz B., Erkan M.

Antioxidant activity of Genistein on Polychlorinated Biphenyl (Aroclor 1260) induced toxicity in TM3 cell line, Gupta V. K., Verma A. K., Singh G., Editor, Daya Publishing House, New Delhi, pp.467-489, 2013

8. **in: Gelişim Biyolojisi**

TUNALI AYUN Y.

Bölüm 2 Gelişim Genetiği, Erkan M. Tülay İ., Editor, Nobel Tıp Kitapevleri, İstanbul, pp.31-68, 2013

9. **in: Gelişim Biyolojisi**

TUNALI AYUN Y.

Kısım I Sorular Gelişim Biyolojisine Giriş, Erkan M. Tülay İ., Editor, Nobel Tıp Kitapevleri, İstanbul, pp.1-4, 2013

Refereed Congress / Symposium Publications in Proceedings

1. **Antioxidant activity of ascorbic acid on sodium fluoride induced cytotoxicity, oxidative damage, and apoptosis in Leydig cells**

Orta Yılmaz B., Aydın Y.

3rd International Eurasian Conference on Biological and Chemical Sciences (EurasianBioChem 2020), Ankara, Turkey, 19 - 20 March 2020, pp.15-22

2. **Furan induces cytotoxicity, oxidative stress and apoptosis in Leydig cells**

Dikbasan Y. Ü. , AYDIN Y.

International Biodiversity & Ecology Sciences Symposium, İstanbul, Turkey, 26 - 28 September 2019, pp.184

3. **Lipidomic analysis reveals increased TXA2 presence in non-receptive endometrium of recurrent miscarriage and repeated implantation failure patients**

Bastu E., Demiral I., Ulgen E., Erkan M. B. , Celik S. E. , Aydın Y., Onem A. N. , Ozgor B. Y. , Dogan M., Apak R., et al.

34th Annual Meeting of the European-Society-of-Human-Reproduction-and-Embryology (ESHRE), Barcelona, Spain, 1 - 04 June 2018, vol.33, pp.337-338

4. **Anti-Oxidative Effects of Curcumin on Sodium Arsenite Induced Oxidative Damage in 3T3 Embryonic Fibroblast Cells**

ORTA YILMAZ B., AYDIN Y., Yıldızbayrak N., PERKER M. C. , ERKAN M. B.

INTERNATIONAL EURASIAN CONFERENCE ON BIOLOGICAL AND CHEMICAL SCIENCES, Ankara, Turkey, 26 - 27 April 2018, vol.1, no.1, pp.356

5. **Ameliorative effects of vitamin C on cellular oxidative damage and apoptosis induced by glycidamide in Sertoli cells**
AYDIN Y., ORTA YILMAZ B.
International Congress on Engineering and Life Sciences, Kastamonu, Turkey, 26 - 29 April 2018, vol.1, no.1, pp.1
6. **Co-exposure to sodium arsenite and sodium fluoride induced cellular and oxidative damage in Sertoli cells**
ORTA YILMAZ B., AYDIN Y.
3rd International Congress on Environmental Researches and Technology (ICERAT), Belgrad, Serbia And Montenegro, 8 - 12 November 2017, pp.1-2
7. **Whole-Genome Characterization and Composition of European Anchovy (*Engraulis Encrasicolus* L., 1758)**
ELDEM V., Yüksel B., ERKAN M. B. , Zararsız G., DİKMEN F., Saraç A., AYDIN Y., Taşçi T., Gücü A. C.
FABA 2016: International Symposium on Fisheries and Aquatic Sciences, Antalya, Turkey, 3 - 05 November 2016, pp.111-112
8. **Hamsi balığı (*Engraulis Encrasicolus*)'nın yumurta gelişiminde rol oynayan genlerin karşılaştırmalı transkriptomik yaklaşım ile belirlenmesi**
ELDEM V., AYDIN Y., Yüksel B., ERKAN M. B.
II. Ulusal Su Ürünleri Yetiştiriciliğinde Gamet Biyolojisi Çalıştayı, Muğla, Turkey, 19 - 21 April 2016, pp.1
9. **Attenuating effect of Vitamin E and genistein on polychlorinated biphenyl (araclor 1242) induced oxidatıve damage and changes in steroidogenic enzymes in Leydig cells**
ERKAN M. B. , AYDIN Y.
9th Congress of the Turkish Society of Toxicology with Participation of the Hellenic Society of the Toxicology, İzmir, Turkey, 21 - 24 October 2015, pp.23
10. **Effect of fluoride on Leydig cell viability, cytotoxicity and oxidative damage in vitro**
Tunali Y.
51st Congress of the European-Societies-of-Toxicology (EUROTOX), Porto, Portugal, 13 - 16 September 2015, vol.238
11. **Effects of Acrylamide and Glycidamide on Antioxidant Systems and Steroidogenic Enzymes on TM4 Sertoli Cell**
TUNALI Y.
9th World Congress on Alternatives and Animal Use in the Life Sciences, Prag, Czech Republic, 24 - 28 August 2014, pp.136
12. **Acrylamide and Its Metabolite Glycidamide can Effect Antioxidant System and Steroidogenesis in Leydig Cell in vitro**
TUNALI Y., ERKAN M. B.
9th World Congress on Alternatives and Animal Use in the Life Sciences, Prag, Czech Republic, 24 - 28 August 2014, pp.136
13. **Morphological And Histochemical Examination Of Gonads In Homarus Gammarus (L. 1758) (Decapoda, Homaridae)**
ERKAN M., TUNALI AYUN Y.
The Crustacean Society Summer Meeting and 10th Collaquium Crustacea Decapoda Mediterranea in June 2012, in Athens-GREECE, Greece, 1 - 04 June 2012, pp.185
14. **The male reproductive system in Nephrops norvegicus (Decapoda, Nephropoidae)**
TUNALI AYUN Y.
The Crustacean Society Summer Meeting and 10th Collaquium Crustacea Decapoda Mediterranea in June 2012, in Athens-GREECE, Greece, 1 - 04 June 2012, pp.188

Professional Experience

Courses

HÜCRE İSKELETİ YAPI VE FONKSİYONU, Post Graduate, 2019 - 2020
İNSAN EMBRİYOLOJİSİNE GİRİŞ, Under Graduate, 2019 - 2020
MOLEKÜLER GENETİK, Under Graduate, 2019 - 2020
GELİŞİM BİYOLOJİSİNDE SEÇME KONULAR, Under Graduate, 2019 - 2020
HÜCRE VE MOLEKÜLER BİYOLOJİ ARAŞTIRMALARI II, Under Graduate, 2019 - 2020
HÜCRE FARKLILAŞMASI, Post Graduate, 2019 - 2020
HÜCRE VE MOLEKÜLER BİYOLOJİ ARAŞTIRMALARI I, Under Graduate, 2018 - 2019, 2019 - 2020
GENETİK TOKSİKOLOJİ ARAŞTIRMA YÖNTEMLERİ, Under Graduate, 2018 - 2019, 2019 - 2020
METAMORPHOSIS, REGENERATION AND AGING, Under Graduate, 2018 - 2019, 2019 - 2020

Activities in Scientific Journals

International Journal of Advances in Biology (IJAB), Publication Committee Member, 2013 - Continues

Memberships / Tasks in Scientific Organizations

Türk Toksikoloji Derneği, Member, 2017 - Continues
The Crustacean Society, Member, 2008 - 2014
International Society for the Study of Xenobiotics, Member, 2010 - 2011

Scientific Refereeing

HUMAN & EXPERIMENTAL TOXICOLOGY, SCI Journal, July 2020
Fertility and Sterility, SCI Journal, October 2019
Journal of Sexual Medicine, SCI Journal, June 2017
Human&Experimental Toxicology, SCI Journal, April 2017
Human&Experimental Toxicology, SCI Journal, September 2016
Human&Experimental Toxicology, SCI Journal, March 2016
Behavioral and Brain Functions, SCI Journal, January 2016
Human&Experimental Toxicology, SCI Journal, January 2016
Desalination and Water Treatment, SCI Journal, June 2015
Cell Biology International, SCI Journal, September 2014
Turkish journal of Biology, SCI Journal, July 2014
Cell Biology International, SCI Journal, April 2014
Cell Biology International, SCI Journal, February 2014

Invited Congress and Symposium Activities

International Congress on Engineering and Life Sciences, Attendee, Kastamonu, Turkey, 2018
FABA 2016: International Symposium on Fisheries and Aquatic Sciences, Attendee, Antalya, Turkey, 2016
II. Ulusal Su Ürünleri Yetiştiriciliğinde Gamet Biyolojisi Çalıştayı, Attendee, Muğla, Turkey, 2016
9th Congress of the Turkish Society of Toxicology with the participation of the Hellenic Society of Toxicology, Attendee, İzmir, Turkey, 2015

51st Congress of European Societies of Toxicology Bridging Science For Safety, Attendee, Porto, Portugal, 2015

9th World Congress on Alternatives and Animal Use in the Life Sciences, Attendee, Prag, Czech Republic, 2014

The Crustacean Society Summer Meeting and 10th Colloquium Crustacea Decapoda Mediterranea in June 2012, in Athens-GREECE, Attendee, Atina, Greece, 2012

Citations

Total Citations (WOS):85

h-index (WOS):5

Research Areas

Life Sciences, Biochemistry, Biochemical Toxicology, Animal Biology, Animal Tissue Culture, Animal Cytology and Histology, Animal Development and Maturation, Animal Reproduction, Molecular Biology and Genetics, Animal Molecular Genetics, Natural Sciences