

References 1

Links: Abstracts, Articles, etc.

These links should work as of 2014; sometimes you have to click on them several times; if they don't work, then Google/search the titles

Iodine and: soy, NIS, antibodies, TH production, ocular, salivary, P450

<http://www.ncbi.nlm.nih.gov/pubmed/23918874> Soy extracts suppressed iodine uptake and stimulated the production of autoimmunogen in rat thyrocytes.

<http://jp.physoc.org/content/590/23/6013.long> Dietary iodide controls its own absorption through post-transcriptional regulation of the intestinal Na⁺/I⁻ symporter

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3367315/> The Sodium Iodide Symporter as an Imaging Reporter for Gene, Viral, and Cell Based Therapies

<http://www.ncbi.nlm.nih.gov/pubmed/11231356> Expression of the sodium iodide symporter in human kidney.

<http://www.ncbi.nlm.nih.gov/pubmed/12588808/> The sodium/iodide Symporter (NIS): characterization, regulation, and medical significance.

<http://www.ncbi.nlm.nih.gov/pubmed/17488796> BRAF mutations in papillary thyroid carcinomas inhibit genes involved in iodine metabolism.

<http://www.ncbi.nlm.nih.gov/pubmed/11134119> Low frequency of autoantibodies to the human Na⁽⁺⁾/I⁽⁻⁾ symporter in patients with autoimmune thyroid disease.

http://www.optimox.com/pics/Iodine/IOD-05/IOD_05.html Pro-Iodine advocate Abraham

http://press.endocrine.org/doi/abs/10.1210/endo-78-5-983?url_ver=Z39.88-2003&rfr_id=ori:rid:crossref.org&rfr_dat=cr_pub%3dpubmed& **Biological Evidence for Extrathyroidal Thyroxine Formation**

http://www.revophth.com/content/d/therapeutic_topics/i/1216/c/22903/ Iodine and ophthalmology

<http://www.ncbi.nlm.nih.gov/pubmed/9111521> **Possible conserved mechanisms of alternative iodine metabolism without thyroid glands**

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2654752/> NIS and Pendrin Iodine homeostasis

<http://biolargo.com/industry-news/iodine-the-next-vitamin-d-part-ii/> Iodine as vitamin?

<http://www.ncbi.nlm.nih.gov/pubmed/9111521> Iodine metabolism and thyroid-related functions in organisms lacking thyroid follicles: are thyroid hormones also vitamins?

<http://onlinelibrary.wiley.com/doi/10.1111/j.1749-6632.1960.tb49959.x/abstract> Iodine metabolism of salivary glands, Myant

<http://curezone.org/forums/am.asp?i=1930716> Iodine swelling salivary glands; forum discussion

<http://www.optimox.com/pics/iodine/pdfs/IOD13.pdf> Abrahams's saliva:serum iodide ratio

<http://www.ncbi.nlm.nih.gov/pubmed/19835108> Venturi on Iodine in evolution of salivary glands and in oral health.

<http://www.ncbi.nlm.nih.gov/pubmed/24480283> Potential method to measure iodine levels in tendon biopsies?-- since scintigraphy won't work due to poor blood supply; need to ask about method to measure total iodine or NIS expression in tendons

<http://www.ncbi.nlm.nih.gov/pubmed/9133680> Iodine metabolism and thyroid physiology: current concepts.

<http://www.ncbi.nlm.nih.gov/pubmed/15927769> Ovarian iodide uptake and triiodothyronine generation in follicular fluid. The enigma of the thyroid ovary interaction.

<http://www.public.health.wa.gov.au/cproot/2550/2/Pralidoxime%20Iodide%20Injection.pdf> Pralidoxime iodide

<http://iodine.atomistry.com/pdb1s6v.html> Iodine in the structure of Structure of A Cytochrome C Peroxidase-Cytochrome C Site Specific Cross-Link (pdb 1s6v)

[http://www.oarsijournal.com/article/S1063-4584\(07\)00117-3/abstract](http://www.oarsijournal.com/article/S1063-4584(07)00117-3/abstract) Effects of selenium and iodine deficiency on bone, cartilage growth plate and chondrocyte differentiation in two generations of rats. The purpose of the current study was to investigate the roles of combined selenium and iodine deficiency in bone development as a possible experimental model of Kashin-Beck osteoarthropathy.

<http://www.ncbi.nlm.nih.gov/pubmed/23528554> Deleterious effects of diluted povidone-iodine on articular cartilage.

<http://www.ncbi.nlm.nih.gov/pubmed/16365691> Toxic effects of povidone-iodine on synovial cell and articular cartilage.

<http://connection.ebscohost.com/c/articles/73556734/preventive-effects-supplemental-selenium-selenium-plus-iodine-bone-cartilage-development-rats-fed-diet-from-kashin-beck-disease-endemic-area> Preventive Effects of Supplemental Selenium and Selenium Plus Iodine on Bone and Cartilage Development in Rats Fed with Diet from Kashin-Beck Disease Endemic Area

<http://www.ncbi.nlm.nih.gov/pubmed/22366236> Selenium and/or iodine deficiency alters hepatic xenobiotic metabolizing enzyme activities in rats.

<http://www.ncbi.nlm.nih.gov/pubmed/9084907> Influence of substituents in fluorobenzene derivatives on the cytochrome P450-catalyzed hydroxylation at the adjacent ortho aromatic carbon center.

<http://onlinelibrary.wiley.com/doi/10.1002/cmdc.200800049/abstract;jsessionid=7EFA18B44FB1D1A8A18E58CD5ACAB8A2.f02t04> Discovery of Aryltrifluoroborates as Potent Sodium/Iodide Symporter (NIS) Inhibitors

<http://examine.com/faq/how-can-i-safely-consume-seaweed.html> How Can I Safely Consume Seaweed

<http://www.ncbi.nlm.nih.gov/pubmed/9084907> Influence of substituents in fluorobenzene derivatives on the cytochrome P450-catalyzed hydroxylation at the adjacent ortho aromatic carbon center.

Chronic Illness:

<http://www.psychologytoday.com/blog/turning-straw-gold/201301/5-tough-choices-you-face-when-chronically-ill-or-in-pain/comments> Five tough choices you face when chronically ill or in pain

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2563280/> What Should We Say? Research article

Thyroid (genomic and nongenomic), Deiodinases, selenoproteins, estrogens/steroids, SJS, SCL families, Fluorine, ACh-related, tyrosine-related, mitochondrial, topoisomerases:

<http://www.thyroidmanager.org/chapter/thyroid-hormone-synthesis-and-secretion/> Thyroid Hormone Synthesis and Secretion

<http://link.springer.com/article/10.1007%2FBF01725187> Thyroid hormone action on intermediary metabolism (T3 directly stimulates mitochondrial respiration and ATP synthesis)

<http://www.ncbi.nlm.nih.gov/pubmed/24464019> Thyroid: biological actions of 'nonclassical' thyroid hormones.

<http://www.ncbi.nlm.nih.gov/pubmed/21354437> Overlapping nongenomic and genomic actions of thyroid hormone and steroids.

<http://www.ncbi.nlm.nih.gov/pubmed/20868274> Membrane receptor for thyroid hormone: physiologic and pharmacologic implications.

<http://www.scopus.com/record/display.url?eid=2-s2.0-0029907826&origin=inward&txGid=65BDA88156660083940A8E0F6F1347FF.WeLimyRvBMk2ky9SFKc8Q%3a2> Nongenomic Actions of Thyroid Hormone

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3539254/> Thyrotropin-Blocking Autoantibodies and Thyroid-Stimulating Autoantibodies: Potential Mechanisms Involved in the Pendulum Swinging from Hypothyroidism to Hyperthyroidism or Vice Versa

<http://www.ncbi.nlm.nih.gov/pubmed/20658515> Nongenomic signaling pathways triggered by thyroid hormones and their metabolite 3-iodothyronamine on the cardiovascular system.

<http://www.ncbi.nlm.nih.gov/pubmed/21888293> Bioactivity of thyroid hormones. Clinical significance of membrane transporters, deiodinases and nuclear receptors.

<http://www.ncbi.nlm.nih.gov/pubmed/23214068> Drug-induced thyroid dysfunction

<http://www.ncbi.nlm.nih.gov/pubmed/16131329> Structure and function of the type 3 deiodinase gene.

<http://www.ncbi.nlm.nih.gov/pubmed/23046013> Selenium and the thyroid gland: more good news for clinicians.

<http://www.ncbi.nlm.nih.gov/pubmed/22009156> Selenium, selenoproteins and the thyroid gland: interactions in health and disease.

<http://www.ncbi.nlm.nih.gov/pubmed/15749805> Selenium and endocrine systems.

<http://en.wikipedia.org/wiki/SELENBP1> SELENBP1 (Selenium Binding Protein)

<http://www.ncbi.nlm.nih.gov/pubmed/24095912> The role of selenium in endocrine system diseases.

<http://www.ncbi.nlm.nih.gov/pubmed/22146060> A specific multi-nutrient formulation enhances M1 muscarinic acetylcholine receptor responses in vitro.

<http://www.ncbi.nlm.nih.gov/pubmed/9256932> The effect of dietary selenium on lead neurotoxicity.

<http://www.ncbi.nlm.nih.gov/pubmed/24322650> Thyroid hormones and skeletal muscle--new insights and potential implications. DI's and skeletal muscle, local control T3

<http://www.ncbi.nlm.nih.gov/pubmed/23750337> The role of the iodothyronine deiodinases in the physiology and pathophysiology of thyroid hormone action.

<http://www.ncbi.nlm.nih.gov/pubmed/8767511> Thyroid hormone deiodinases--a selenoenzyme family acting as gate keepers to thyroid hormone action.

https://etd.ohiolink.edu/rws_etd/document/get/osu1179976985/inline Dissertation: Effect of Estrogen Status on Selenium Metabolism in Female Rats

<http://www.ncbi.nlm.nih.gov/pubmed/24392277> Selenoprotein W expression and regulation in mouse brain and neurons.

<http://www.ncbi.nlm.nih.gov/pubmed/19627257/> Regulation and function of selenoproteins in human disease.

<http://www.ncbi.nlm.nih.gov/pubmed/19332511> Statin-induced liver injury involves cross-talk between cholesterol and selenoprotein biosynthetic pathways.

http://www.eurekalert.org/pub_releases/2004-05/ohs-ncm051404.php New compound may act to keep thyroid activity in check, OHSU study finds T1 amine rapidly causes hypothermia, blood pressure drop, slow pulse

<https://www.youtube.com/watch?v=97SOyEYwh54> Paul Robinson, C3TM (using T3 only)

<http://www.ncbi.nlm.nih.gov/pubmed/10382022> Lauren Trepanier, DVM: Serum total thyroxine, total triiodothyronine, free thyroxine, and thyrotropin concentrations in epileptic dogs treated with anticonvulsants. This type of study would be easy enough to replicate using FQ's vs AITD panels relatively inexpensively (10 grand or less)

<http://www.ncbi.nlm.nih.gov/pubmed/10200798> Lauren Trepanier, DVM: Clinical hypothyroidism associated with trimethoprim-sulfadiazine administration in a dog.

<http://www.ncbi.nlm.nih.gov/pubmed/12030612> Comparison of the mechanisms of nongenomic actions of thyroid hormone and steroid hormones.

<http://www.ncbi.nlm.nih.gov/pubmed/24114667> Does thyroid peroxidase provide an antigenic link between thyroid autoimmunity and breast cancer? Note possible antigenic epitopes in common

<http://www.ncbi.nlm.nih.gov/pubmed/10732327> Mechanisms of action and cross-talk between estrogen receptor and progesterone receptor pathways.

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2949235/> Full paper, Tomer: Genetic Susceptibility to Autoimmune Thyroid Disease: Past, Present, and Future

<http://www.ncbi.nlm.nih.gov/pubmed/12864797> Partial iodide organification defect caused by a novel mutation of the thyroid peroxidase gene in three siblings.

<http://www.omim.org/entry/606765> TPO Info

<http://www.ncbi.nlm.nih.gov/pubmed/11084952> Neuroendocrine manifestations in Sjögren's syndrome.

<http://www.ncbi.nlm.nih.gov/pubmed/8833045> Adrenal and gonadal steroid hormone deficiency in the pathogenesis of rheumatoid arthritis.

<http://www.ncbi.nlm.nih.gov/pubmed/11155807> The hypothalamic-pituitary-adrenocortical and gonadal axis function in rheumatoid arthritis.

<http://www.ncbi.nlm.nih.gov/pubmed/23506875> The SLC16 gene family - structure, role and regulation in health and disease.

<http://www.ncbi.nlm.nih.gov/pubmed/23978482> Associations between single nucleotide polymorphisms in thyroid hormone transporter genes (MCT8, MCT10 and OATP1C1) and circulating thyroid hormones.

<http://www.ncbi.nlm.nih.gov/pubmed/18035820> The role of fluorine in medicinal chemistry.

<http://www.ncbi.nlm.nih.gov/pubmed/11254240> Hypothalamus-hypophysis-thyroid axis, triiodothyronine and antithyroid antibodies in patients with primary and secondary Sjögren's syndrome. Note: antibodies to T4/T3 themselves mentioned, creating potentially spurious T3/T4 results

<https://sites.google.com/site/annerwright/cholinesterase-inhibitors> Anne Wright, cholinesterase Inhibitors as a source of chronic illness.

<http://www.jbc.org/content/281/15/10347.full> Acetylcholinesterase Dynamics at the Neuromuscular Junction of Live Animals

<http://www.ncbi.nlm.nih.gov/pubmed/22981737> Specific binding of collagen Q to the neuromuscular junction is exploited to cure congenital myasthenia and to explore bases of myasthenia gravis.

<http://www.ncbi.nlm.nih.gov/pubmed/17344150> Some neurologic and psychiatric complications in endocrine disorders: the thyroid gland.

<http://www.ncbi.nlm.nih.gov/pubmed/9221313> Analysis of ocular saccadic movements with a fatigue test and neostigmine in Graves' ophthalmopathy.

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3683220/> Ocular Myasthenia Gravis in a setting of thyrotoxicosis. Note similarity to acute phase of FQT (both TH and ACh(e) affected).

<https://sites.google.com/a/macalester.edu/nerve-agents/home/acetylcholine-and-vx> Nerve agents. Nice descriptions of ACh and AChE mechanisms

<http://www.cjpt.ac.cn/EN/abstract/abstract1056.shtml> Effect of herbicide sulcotrione on serum tyrosine level in rats

<http://courses.washington.edu/chat543/cvans/sfp/acetylch.html> ACh: Structure Function. Nice descriptions of ACh

<http://en.wikipedia.org/wiki/Choline> Choline info

<http://www.ncbi.nlm.nih.gov/pubmed/12888775> Modulation of mood and cognitive performance following acute administration of single doses of Melissa officinalis (Lemon balm) with human CNS nicotinic and muscarinic receptor-binding properties.

<http://www.nature.com/npp/journal/v37/n1/full/npp2011199a.html> Muscarinic and Nicotinic Acetylcholine Receptor Agonists and Allosteric Modulators for the Treatment of Schizophrenia. Excellent review

<http://www.ncbi.nlm.nih.gov/pubmed/17132968> Thyroid function in patients with Alzheimer disease: implications on response to anticholinesterase treatment

<http://www.ncbi.nlm.nih.gov/pubmed/19576448> Magnesium effect on the acetylcholinesterase inhibition mechanism: a molecular chromatographic approach.

<http://www.ncbi.nlm.nih.gov/pubmed/24473150> Copper, aluminum, iron and calcium inhibit human acetylcholinesterase in vitro.

<http://www.ncbi.nlm.nih.gov/pubmed/17289083> Extensive expression of markers for acetylcholine synthesis and of M2 receptors in tenocytes in therapy-resistant chronic painful patellar tendon tendinosis - a pilot study.

<http://www.ncbi.nlm.nih.gov/pubmed/17999088> Presence of a non-neuronal cholinergic system and occurrence of up- and down-regulation in expression of M2 muscarinic acetylcholine receptors: new aspects of importance regarding Achilles tendon tendinosis (tendinopathy).

<http://www.ncbi.nlm.nih.gov/pubmed/17206652> Studies on the importance of sympathetic innervation, adrenergic receptors, and a possible local catecholamine production in the development of patellar tendinopathy (tendinosis) in man.

<http://www.ncbi.nlm.nih.gov/pubmed/17999376> Immunohistochemical and in situ hybridization observations favor a local catecholamine production in the human Achilles tendon.

<http://www.ncbi.nlm.nih.gov/pubmed/18050306> VGluT2 expression in painful Achilles and patellar tendinosis: evidence of local glutamate release by tenocytes.

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2518461/> Acetylcholine beyond neurons: the non-neuronal ACh system in humans

<http://www.ncbi.nlm.nih.gov/pubmed/22222711> Activation of muscarinic receptors by non-neuronal acetylcholine.

<http://www.ncbi.nlm.nih.gov/pubmed/17275854> Release of non-neuronal acetylcholine from the isolated human placenta is affected by antidepressants. Note: "Theophylline may also interfere with the release of non-neuronal ACh".

<http://www.ncbi.nlm.nih.gov/pubmed/12628456> The non-neuronal cholinergic system in humans: expression, function and pathophysiology.

<http://dig.pharm.uic.edu/fag/myasthenia.aspx> What drugs should be avoided in myasthenia gravis? Note both FQ's and Pred are on the list

<http://ispub.com/IJN/10/2/9809> Drugs Which May Exacerbate or Induce Myasthenia Gravis: A Clinician's Guide

<http://ghr.nlm.nih.gov/condition/pseudocholinesterase-deficiency> Pseudocholinesterase deficiency

http://en.wikipedia.org/wiki/Pseudocholinesterase_deficiency Pseudocholinesterase deficiency

[http://www.jni-journal.com/article/S0165-5728\(03\)00209-1/abstract](http://www.jni-journal.com/article/S0165-5728(03)00209-1/abstract) Breakage of tolerance to hidden cytoplasmic epitopes of the acetylcholine receptor in experimental autoimmune myasthenia gravis

<http://www.ncbi.nlm.nih.gov/pubmed/7325760> Thyroid status and muscarinic receptor density and affinity in rat intestinal smooth muscle

<http://www.ncbi.nlm.nih.gov/pubmed/6279669> Effect of thyroid status on beta-adrenoreceptors and muscarinic receptors in the rat lung.

<http://sjogrensworld.org/forums/index.php?PHPSESSID=30d43d90d3a78a4cb8b0bee4fca8a653&topic=18631.0> Ganglionic Autonomic Neuropathy ACh Woolyimp's story

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2706412/> Muscle Specific Receptor Tyrosine Kinase Antibody Positive Myasthenia Gravis Current Status

<http://www.ncbi.nlm.nih.gov/pubmed/21871884> Interaction between ciprofloxacin and melanin: the effect on proliferation and melanization in melanocytes. "Ciprofloxacin reduces melanin content, and decreases tyrosinase activity in human skin melanocytes" ebuszman@sum.edu.pl

<http://www.ncbi.nlm.nih.gov/pubmed/12098580> Melanin potentiates gentamicin-induced inhibition of collagen biosynthesis in human skin fibroblasts. "In view of the fact that a number of pharmacologic agents are known to form complexes with melanin and melanin is an abundant constituent of the inner ear tissues, we determined whether gentamicin interacts with melanin and how this process affects the biosynthesis of collagen in cultured human skin fibroblasts". – consider FQ's affect tyrosinase → melanin in inner ear → tinnitus

<http://www.ncbi.nlm.nih.gov/pubmed/9843160> Dopamine, in the presence of tyrosinase, covalently modifies and inactivates tyrosine hydroxylase.

<http://www.ncbi.nlm.nih.gov/pubmed/10461926> Tyrosine hydroxylase is inactivated by catechol-quinones and converted to a redox-cycling quinoprotein: possible relevance to Parkinson's disease.

<http://link.springer.com/article/10.1007/BF03033137#page-1> The Role of Dopamine Quinone Formation and Tyrosinase in a Model of Parkinson's Disease

<http://en.wikipedia.org/wiki/Tyrosinase> Tyrosinase

<http://www.ncbi.nlm.nih.gov/pubmed/8248014> Mechanistic aspects of the control of tyrosinase activity

<http://www.ncbi.nlm.nih.gov/pubmed/6810464> Mammalian tyrosinase catalyzes three reactions in the biosynthesis of melanin.

<http://www.ncbi.nlm.nih.gov/pubmed/9029814> Lag kinetics of tyrosinase: its physiological implications

<http://www.ncbi.nlm.nih.gov/pubmed/24917394> In silico approach to inhibition of tyrosinase by ascorbic acid using molecular docking simulations.

http://en.wikipedia.org/wiki/Site-specific_recombination Tyrosine recombinases

<http://www.nature.com/nm/journal/v17/n4/full/nm.2307.html> Metabolite profiles and the risk of developing diabetes. "Five branched-chain and aromatic amino acids had highly significant associations with future diabetes: isoleucine, leucine, valine, tyrosine and phenylalanine. A combination of three amino acids predicted future diabetes (with a more than fivefold higher risk for individuals in top quartile). The results were replicated in an independent, prospective cohort. These findings underscore the potential key role of amino acid metabolism early in the pathogenesis of diabetes and suggest that amino acid profiles could aid in diabetes risk assessment". (Note BCAA and Aromatic abnormalities, which is what I think I got after being floxed)

<http://www.ncbi.nlm.nih.gov/pubmed/18262359> Functional characterization of tyrosine transport in fibroblast cells from healthy controls.

<http://www.ncbi.nlm.nih.gov/pubmed/16274928> Tyrosine transport in fibroblasts from healthy volunteers and patients with schizophrenia.

<http://www.ncbi.nlm.nih.gov/pubmed/19429160> Aberrant amino acid transport in fibroblasts from patients with bipolar disorder.

<http://www.ncbi.nlm.nih.gov/pubmed/9335198> Tyrosine hydroxylase allelic distribution in suicide attempters

<http://www.ncbi.nlm.nih.gov/pubmed/11564694> Thyroid hormone transport by the heterodimeric human system L amino acid transporter.

http://en.wikipedia.org/wiki/Tyrosine_kinase Tyrosine Kinase info

http://en.wikipedia.org/wiki/Protein_tyrosine_phosphatase Tyrosine phosphatase info

http://en.wikipedia.org/wiki/Receptor_tyrosine_kinase Receptor Tyrosine kinases

<http://www.ncbi.nlm.nih.gov/pubmed/23398161> Tyrosine kinase inhibitor-induced thyroid disorders: a review and hypothesis.

<http://www.ncbi.nlm.nih.gov/pubmed/22101606> Tyrosine kinase inhibitor-induced hypothyroidism: incidence, etiology, and management.

<http://www.ncbi.nlm.nih.gov/pubmed/19333228> Hypothyroidism related to tyrosine kinase inhibitors: an emerging toxic effect of targeted therapy.

<http://www.ncbi.nlm.nih.gov/pubmed/17595247> A novel tyrosine-kinase selective inhibitor, sunitinib, induces transient hypothyroidism by blocking iodine uptake.

<http://www.ncbi.nlm.nih.gov/pubmed/24399735> Pharmacokinetics of sunitinib in combination with fluoroquinolones in rabbit model. "Ciprofloxacin is a well-known inhibitor of cytochrome P450 CYP3A4 and causes numerous drug interactions . . . CYP3A4 is involved in the metabolism of the new oral multikinase inhibitor sunitinib." "Because of the frequent use of FQs for the treatment of bacterial infections, especially UTIs, there is high probability that this group of drugs may be associated with patients on sunitinib".

<http://www.hindawi.com/journals/bmri/2013/725410/> Full paper: Tyrosine Kinase Inhibitors Induced Thyroid Dysfunction: A Review of Its Incidence, Pathophysiology, Clinical Relevance, and Treatment

<https://beyondthedish.wordpress.com/tag/receptor-tyrosine-kinases/> Tag Archives: receptor tyrosine kinases

http://www.google.com/search?q=receptor+tyrosine+kinase+thyroid&nord=1&tbm=isch&imgil=rekQhQ1Z8QdAMM%253A%253BCqHyr9GTctUiSM%253Bhttp%25253A%25252F%25252Fwww.elsevierimage.com%25252Fimage%25252F27193.htm&source=iu&usq=S1ZF2IE-3LTXJ5h8XKPN02jAB84%3D&sa=X&ei=-ziU9mEJY_2yQT_y4G4Bw&ved=0CF0Q9QEwBg&biw=911&bih=449 Receptor tyrosine kinases pics

<http://www.ncbi.nlm.nih.gov/pubmed/2190093> Three-dimensional structure of the free radical protein of ribonucleotide reductase. The enzyme ribonucleotide reductase furnishes precursors for the DNA synthesis of all living cells. One of its constituents, the free radical protein, has an unusual alpha-helical structure. There are two iron centres that are about 25 Å apart in the dimeric molecule. Tyrosine 122, which harbours the stable free radical necessary for the activity of ribonucleotide reductase, is buried inside the protein and is located 5 Å from the closest iron atom.

<http://www.ncbi.nlm.nih.gov/pubmed/3007085> The tyrosyl free radical in ribonucleotide reductase. Note: as above, this tyrosyl radical is located at Tyrosine 122, may not be significant due to numbering scheme however

<http://www.intechopen.com/books/howtoreference/systemic-lupus-erythematosus/tyrosine-based-monitoring-of-glucocorticoid-therapy-in-sle> Using Tyrosine to monitor steroid Tx – interesting

<http://www.ncbi.nlm.nih.gov/pubmed/20370614> Blood content of tyrosine is an index of glucocorticoid action on metabolism.

<http://joe.endocrinology-journals.org/content/35/3/223> The Serum Tyrosine Level as an Index of Thyroid Function – Note Vite C connection

<http://www.nutritionj.com/content/12/1/60> Diurnal variation of phenylalanine and tyrosine concentrations in adult patients with phenylketonuria: subcutaneous microdialysis is no adequate tool for the determination of amino acid concentrations

<http://en.wikipedia.org/wiki/Tyramine> Tyramine

<http://www.sudjms.net/issues/6-2/html/14Spontaneous%20Achilles%20tendon%20rupture%20in%20alkaptonuria.htm> Spontaneous Achilles tendon rupture in alkaptonuria

<http://en.wikipedia.org/wiki/Fibronectin> Fibronectin in collagen

<http://www.ncbi.nlm.nih.gov/pubmed/2683566> Fibronectin and laminin in Achilles tendon.

<http://www.ncbi.nlm.nih.gov/pubmed/2201247> Fibronectin in the ruptured human Achilles tendon and its paratenon. An immunoperoxidase study.

<http://www.ncbi.nlm.nih.gov/pubmed/3275431> Tendon synovial cells secrete fibronectin in vivo and in vitro.

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3330681/> Multiple Tyrosine Metabolites are GPR35 Agonists

<http://www.nature.com/onc/journal/v19/n49/full/1203957a.html> The protein tyrosine kinase family of the human genome

<http://ghr.nlm.nih.gov/condition/tyrosine-hydroxylase-deficiency> Tyrosine Hydroxylase Deficiency

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2435356/> Functional Properties and Genomics of Glucose Transporters (look for tyrosines in conserved sequences)

<http://www.guidetopharmacology.org/GRAC/FamilyDisplayForward?familyId=143> SLC5 family of sodium-dependent glucose transporters: Nice descriptions, note iodide, choline, B vites uptake, as well as lactic acid and nicotinic receptor connections

<http://atlasgeneticsoncology.org/Genes/SLC5A5ID44476ch19p13.html> SLC5A5 (solute carrier family 5 (sodium iodide symporter), member 5). Excellent reference on SLC5A

<http://www.ncbi.nlm.nih.gov/pubmed/6251103> Presence and influence of cholinergic nerves in the human thyroid.

<http://www.ncbi.nlm.nih.gov/pubmed/446418> Presence and influence of cholinergic nerves in the mouse thyroid.

<http://www.ncbi.nlm.nih.gov/pubmed/6299691> Acetylcholine and norepinephrine: compared actions thyroid metabolism. (ACh stimulates iodide organification.)

<http://link.springer.com/article/10.1007%2FBF00236733#page-1> Cholinergic nerves in the thyroid gland.

<http://www.ncbi.nlm.nih.gov/pubmed/16298876> Antimalarials inhibit human erythrocyte membrane acetylcholinesterase

<http://molpharm.aspetjournals.org/content/21/1/66?related-urls=yes&legid=molpharm;21/1/66> Muscarinic cholinergic receptors on cultured thyroid cells. I. Biological effect of carbachol and characterization of the receptors.

<http://abstracts.iovs.org/cgi/content/short/44/5/2468> Increased Prevalence of Abnormal Lacrimal Gland Function Tests in Patients with Hashimoto's Thyroiditis: A Cross Sectional Study.

http://www.brenda-enzymes.org/php/result_flat.php4?ecno=1.11.1.8 EC 1.11.1.8 - iodide peroxidase

<http://www.ncbi.nlm.nih.gov/pubmed?cmd=Search&term=16762383> Estrogen effects on thyroid iodide uptake and thyroperoxidase activity in normal and ovariectomized rats.

http://en.wikipedia.org/wiki/Thyroid_peroxidase Thyroid peroxidase

<http://www.google.com.br/patents/EP2145902A2?cl=en> Tyrosine phosphorylation sites and antibodies specific for them

<http://en.wikipedia.org/wiki/Topoisomerase> Topoisomerase

<http://www.annualreviews.org/doi/abs/10.1146/annurev.biochem.70.1.369> DNA TOPOISOMERASES: Structure, Function, and Mechanism

<https://www.youtube.com/watch?v=EYGrEIVyHnU&feature=related> Topoisomerase 1 and 2. Good description on YouTube of topo's.

<http://www.ncbi.nlm.nih.gov/pubmed/8603760> **Characterization of human DNA topoisomerase II as an autoantigen recognized by patients with IDDM.** Look for anti-TOPOII's in FQ victims, and look for homologous epitopes in TH/Iodine metabolism. See full length other paper for discussion of TOPOII's and GAD-65 for Type I DM. Remember, FQ's affect glucose metabolism as well.

<http://www.ncbi.nlm.nih.gov/pubmed/15579051> Receptor tyrosine kinases are signaling intermediates of G protein-coupled receptors.

<http://www.ncbi.nlm.nih.gov/pubmed/7810607> Thyroid hormones modulate both adenosine transport and adenosine A1 receptors in rat brain.

<http://www.ncbi.nlm.nih.gov/pubmed/1865359> Caffeine and theophylline as adenosine receptor antagonists in humans.

<http://www.ncbi.nlm.nih.gov/pubmed/2572681> Adenosine receptor activation and the regulation of tyrosine hydroxylase activity in PC12 and PC18 cells.

<http://www.sciencedirect.com/science/article/pii/S0005273610001707> Structural features of adenosine receptors: From crystal to function

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1572083/> Thyrotropin regulates adenosine A1 receptor expression in rat thyroid FRTL-5 cells

<http://www.hindawi.com/journals/jtr/2013/434727/> New Approaches to Thyroid Hormones and Purinergic Signaling

<http://www.biochemj.org/bj/246/0555/2460555.pdf> Thyroid status and adenosine content of adipose tissue

<http://www.ncbi.nlm.nih.gov/pubmed/22292987> Alpha-2 adrenergic stimulation triggers Achilles tenocyte hypercellularity: Comparison between two model systems. "tyrosine hydroxylase is expressed in tenocytes"

FQ's

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC105691/> Determination of the Excitatory Potencies of FQs in the CNS by an in vitro model: *"Considering the Mg⁺⁺ chelating properties of fluoroquinolones, which have been also postulated as a mechanism for fluoroquinolone action in juvenile cartilage (7, 24, 35), it is tempting to speculate that the excitatory potency of fluoroquinolones might be based on activation of the NMDA receptor by abolishing the Mg²⁺ block in the ion channel."*

<http://aac.asm.org/content/42/8/1923.full.pdf+html> Cipro and T Lymphocytes

http://www.nmcth.edu/images/gallery/Editorial/xRZVmps_ambulkar.pdf Cipro is genotoxic – good paper despite poor translation, as it's one of the first I've seen to mention the "syndrome" of effects somewhat and has a warning tone about topo's being affected with widespread results

<http://www.levaquinadversesideeffect.com/wp-content/uploads/Documents/james-roberts-MD-part1.pdf> James Roberts MD "Adverse Reactions to FQ's, Part 1" link for doctors

http://journals.lww.com/em-news/Fulltext/2008/11000/Adverse_Reactions_to_Fluoroquinolones.12.aspx James Roberts MD "Adverse Reactions to FQ's, Part 2" link for doctors

<http://www.ncbi.nlm.nih.gov/pubmed/19235604> The mitochondria targeted antioxidant MitoQ protects against fluoroquinolone-induced oxidative stress and mitochondrial membrane damage in human Achilles tendon cells.

<http://www.ncbi.nlm.nih.gov/pubmed/18840496> Daniel J Smart, studies “safety” of genotox of FQ’s for pharma, note email address

<http://eprints.aston.ac.uk/19542/> Amino acids in oral drug delivery : salts, ion-pairs and transcriptomics. Note: Cipro used as zwitterion

<http://www.uclouvain.be/cps/ucl/doc/ir-ldri/images/Caceres-2013-1.pdf> Analysis of the Membrane Proteome of Ciprofloxacin-Resistant Macrophages by Stable Isotope Labeling with Amino Acids in Cell Culture (SILAC)

<http://www.fda.gov/Safety/MedWatch/SafetyInformation/ucm247115.htm> Ciprofloxacin MG warning

<http://jac.oxfordjournals.org/content/33/4/685.short> Structure-activity and structure-side-effect relationships for the quinolone antibacterials

<http://aac.asm.org/content/47/3/854.abstract> Quinolone-DNA Interaction: Sequence-Dependent Binding to Single-Stranded DNA Reflects the Interaction within the Gyrase-DNA Complex

<http://www.nature.com/nature/journal/v388/n6645/abs/388903a0.html> Crystal structure of the breakage–reunion domain of DNA gyrase. “The gyrase structure reveals a new dimer contact with a grooved concave surface for binding the G segment and a cluster of conserved charged residues surrounding the **active-site tyrosines**.”

<http://molpharm.aspetjournals.org/content/59/1/122.full> Interactions of a Series of Fluoroquinolone Antibacterial Drugs with the Human Cardiac K⁺ Channel HERG

http://jac.oxfordjournals.org/content/46/suppl_3/17.long Quinolone generations: natural history or natural selection?

<http://aac.asm.org/content/43/6/1511.full> Pharmacokinetic-Pharmacodynamic Contributions to the Convulsant Activity of Fluoroquinolones in Rats

<https://www.bio.cmu.edu/courses/03441/TermPapers/97TermPapers/gyrase/Structure.html> Structure and Function of DNA Gyrase

<https://www.bio.cmu.edu/courses/03441/TermPapers/97TermPapers/gyrase/default.html> Molecular Aspects of DNA Gyrase (same site as above)

http://www.vanderbilt.edu/vicb/DiscoveriesArchives/combating_antibiotic_drug_resistance.html Combatting Antibacterial Drug Resistance. Nice descriptions of FQ mechanisms and topos

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1368348/pdf/brjclinpharm00060-0009.pdf> Iron supplements: a common cause of drug interactions. Consider low iron → increased effective

concentration and toxicity in people with low iron. Note FQ's bind with divalent and trivalent cations, FQ's may bind with heme groups in TPO, other?

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC172774/> Effect of ferrous sulfate and multivitamins with zinc on absorption of Ciprofloxacin in normal volunteers

<http://www.ph.ucla.edu/epi/bioter/ciprodownside.html> Downside of Widespread Cipro Use

<http://hearinglosshelp.com/weblog/is-ciprofloxacin-cipro-ototoxic.php> Is Ciprofloxacin (Cipro) Ototoxic?

[http://www.medical-hypotheses.com/article/S0306-9877\(14\)00217-5/fulltext](http://www.medical-hypotheses.com/article/S0306-9877(14)00217-5/fulltext) Fluoroquinolone antibiotics and type 2 diabetes mellitus

<http://www.ncbi.nlm.nih.gov/pubmed/20210367> Safety considerations of fluoroquinolones in the elderly: an update.

<http://journal.publications.chestnet.org/article.aspx?articleid=1087329> Increased Candida glabrata: Prevalence, Resistance, and Risk Factors

<https://www.youtube.com/watch?v=kUd2hAYfM2s> Dr. Najeeb's FQ lectures

<http://en.wikipedia.org/wiki/SLC22A8> Cipro Transporter. SLC22A8, Solute carrier family 22 member 8 is a protein that in humans is encoded by the SLC22A8 gene, also called organic *anion* transporter 3 (OAT3).

http://en.wikipedia.org/wiki/Organic_cation_transport_proteins An organic cation transport protein mediates the transport of organic cations across the cell membrane. Not sure if it transports FQ's; consider possibility in zwitterionic form

<http://www.ncbi.nlm.nih.gov/pubmed/2771865> Neurochemical studies on quinolone antibiotics: effects on glutamate, GABA and adenosine systems in mammalian CNS.

http://www.theecologist.org/News/news_analysis/897407/popular_antibiotic_ciprofloxacin_linked_to_uk_deaths.html Popular Antibiotic Cipro linked to UK deaths

<http://poisonfluoride.com/phpbb2/viewtopic.php?p=1005&sid=6ed099914cf24c656d4b6248045c52bd> Cipro and TH meds absorption

<http://www.medhelp.org/posts/Undiagnosed-Symptoms/Levaquin-Long-term-Side-effects/show/200405> Forum posts on Levaquin Adverse Effects

Other:

<http://www.bioparadigms.org/slctable.asp> Scientific resource for membrane proteins

<http://www.chdct2.org/> Coalition for Heritable Disorders of Connective Tissue

<http://www.ncbi.nlm.nih.gov/pubmed/24628082> Endocrine disruptome--an open source prediction tool for assessing endocrine disruption potential through nuclear receptor binding. Provides database website info, and can get emails of authors too with a little searching.

<http://www.ncbi.nlm.nih.gov/pubmed/19907904> VirtualToxLab - in silico prediction of the toxic (endocrine-disrupting) potential of drugs, chemicals and natural products. Two years and 2,000 compounds of experience: a progress report.

<http://www.hhmi.org/biointeractive/genetic-switches> Learn about genetic switches on/off

<http://www.ncbi.nlm.nih.gov/books/NBK1335/?report=printable> Marfan's Syndrome info

<http://ghr.nlm.nih.gov/gene/FBN1/show/Gene+Reviews> FBN1 Gene Review

<http://ghr.nlm.nih.gov/gene/FBN1> FBN1 Gene Info

<http://www.drugbank.ca/drugs/DB00279/biointeractions#transporter-tab> Drug Bank: Interactions with T3

<http://rgd.mcw.edu/rgdweb/report/gene/main.html?id=RGD:3704> Gene: Slc2a1 (solute carrier family 2 (facilitated glucose transporter), member 1) Facilitated glucose transporter

<http://www.tcdb.org/search/result.php?tc=2.A.60.1> Transporter Classification Database

<http://www.tcdb.org/search/result.php?tc=2.A.60#ref4998> Transporter Classification Database, references, includes papers with both TH and FQ's

http://www.biograf.ch/data/projects/virtualtoxlab_results.php#3 Virtual Tox Lab --The VirtualToxLab is an in silico tool for predicting the toxic potential (endocrine and metabolic disruption, some aspects of carcinogenicity and cardiotoxicity) of drugs, chemicals and natural products

<https://www.youtube.com/watch?v=A2OS1kv5kgU> Epigenetic Genome Control Lecture

https://www.youtube.com/watch?v=5ZE7o_bRekk Craig Mello Google Talk on RNAi, Gene Expression, Evolution

<https://www.youtube.com/watch?v=j-WVNeyh6do> Micro RNA's and other small regulatory RNA's

<http://vimeo.com/32792885> Autoimmune Autonomic Failure: Treatable, Under-diagnosed. Steve Vernino, PhD.

http://en.wikipedia.org/wiki/Type_I_topoisomerase Type I topoisomerase

<http://publications.nigms.nih.gov/insidelifescience/genetics-numbers.html> Genetics by the numbers: interesting soundbite facts about DNA and genetics

<http://www.livestrong.com/article/84483-foods-rich-choline/> Foods Rich in Choline

http://www.nature.com/nrd/journal/v12/n8/fig_tab/nrd4052_F1.html How allosteric ligands influence orthosteric ligand function. Good description

<https://www.youtube.com/watch?v=T0qF5N0bF7A> Receptors Made Simple:: Adrenergic, Cholinergic, and G Protein Basics. Nice video on YouTube.

<https://www.youtube.com/user/ScienceAnswers101/featured> Simple Science Answers, some nice videos on receptors.

<https://www.youtube.com/watch?v=WRffHcy6fpE&list=PLYAPVqWiyMhNcb8GQU0-Lfw-NKfNj0KE&index=11> Catecholamine Synthesis and Tyrosine Metabolism. Video on YouTube

<http://thesciencenetwork.org/programs/beyond-belief-candles-in-the-dark/beatrice-golomb> Beatrice Golomb, good video

<http://www.scbt.com/datasheet-257065-acetylcholine-iodide.html> Acetylcholine iodide.

<http://en.wikipedia.org/wiki/Metalloprotein> Metalloprotein. Metalloenzymes all have one feature in common, namely that the metal ion is bound to the protein with one labile coordination site. As with all enzymes, the shape of the active site is crucial. The metal ion is usually located in a pocket whose shape fits the substrate.

<http://www.ebi.ac.uk/pdbe/quips?story=AChE> Acetylcholinesterase: A gorge-ous enzyme

<https://www.youtube.com/watch?v=ObrsQI-vPA4> Receptor Tyrosine Kinase

<https://www.youtube.com/watch?v=8FJkjiNRLh8> Cell Signaling Basics

http://www.rndsystems.com/ihc_detail_objectname_antibody_selection_optimization.aspx Primary Antibody Selection & Optimization

<http://www.ncbi.nlm.nih.gov/pubmed/20235827> Enzyme promiscuity: a mechanistic and evolutionary perspective. (Consider FQ's as unintentional substrate analogs in enzymes with similar active site sequences and/or conformations)

<http://www.ncbi.nlm.nih.gov/pubmed/11714928> Catalytic and binding poly-reactivities shared by two unrelated proteins: The potential role of promiscuity in enzyme evolution.

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2375356/> How to calculate the dose of chemotherapy. "Typically there is a 4 – 10-fold variation in cytotoxic drug clearance between individuals due to differing

activity of drug elimination processes related to genetic and environmental factors. For example, the activity of cytochrome P450 (CYP) 3A4/5, the major oxidising enzymes for many cytotoxic drugs varies by as much as 50-fold. A common single-nucleotide polymorphism (SNP) or CYP3A5 has recently been identified and others are being searched for. In addition many drugs and disease states are known to inhibit or induce CYP activity further adding to this variation

<http://www.hormonesmatter.com/molecular-mimicry-autoimmune-disease/> Molecular Mimicry and Autoimmune Disease

http://en.wikipedia.org/wiki/Protein_domain Protein domain

http://en.wikipedia.org/wiki/Phosphotyrosine-binding_domain Phosphotyrosine-binding domain

<http://www.biomedcentral.com/1471-2172/7/7#B1> CED: a conformational epitope database

<http://www.sciencedirect.com/science/article/pii/S1568997204001077> Autoimmune epitopes: autoepitopes

http://www.google.com/search?q=polyclonal+vs+monoclonal+antibody&nord=1&tbm=isch&tbo=u&source=univ&sa=X&ei=psrjU9_DlejA8QH374DgAw&ved=OCDYQsAQ&biw=911&bih=449 Polyclonal vs Monoclonal Antibodies

http://en.wikipedia.org/wiki/Epidermal_growth_factor Epidermal Growth Factor

<http://www.ncbi.nlm.nih.gov/pubmed/19358864> Mechanisms involved in the antinociception caused by ethanolic extract obtained from the leaves of *Melissa officinalis* (lemon balm) in mice.

<http://www.ncbi.nlm.nih.gov/pubmed/19165747> Bioassay-guided fractionation of lemon balm (*Melissa officinalis* L.) using an in vitro measure of GABA transaminase activity.

<http://www.ncbi.nlm.nih.gov/pubmed/12888775> Modulation of mood and cognitive performance following acute administration of single doses of *Melissa officinalis* (Lemon balm) with human CNS nicotinic and muscarinic receptor-binding properties.

<http://www.sdsc.edu/pb/pages/projects.php> Bourne Lab: What happens when we really take a drug? And other questions answered

<http://www.veganhealth.org/articles/choline> Nice info on choline

http://www.pdf.org/parkinson_prescription_meds Parkinson's Meds

<http://www.protocol-online.org/forums/forum/3-immunology/> Immunology Forums

<http://www.progenosis.com/contact> Epitope company for questions

<http://www.dnastar.com/t-about-contact.aspx> DNASTAR for questions

<http://www.genengnews.com/gen-articles/mapping-complex-antibody-epitopes/3161/> Epitope Mapping: Nice tutorial

<http://www.genengnews.com/gen-articles/antibodies-against-membrane-protein-targets/3529/> Antibodies against membrane protein targets: Nice tutorial

<http://www.dddmag.com/articles/2009/10/antibody-strategies-membrane-protein-targets> Antibody strategies membrane protein targets: Nice tutorial

<http://en.wikipedia.org/wiki/Hapten> Haptens

<https://www.youtube.com/watch?v=sYMMBIQSjew> Hapten video

http://en.wikipedia.org/wiki/Molecular_mimicry Molecular Mimicry

<http://nypost.com/2014/08/23/why-its-hell-to-be-a-doctor-in-america-today/> Why it's hell to be a doctor in America today

<http://online.wsj.com/articles/the-u-s-s-ailing-medical-system-a-doctors-perspective-1409325361?ru=yahoo?mod=yahoo> itp Why Doctors Are Sick of Their Profession

<http://www.vancouversun.com/health/Popular+antibiotics+implicated+nerve+damage+says+study+with/10141220/story.html> FQ article

<http://www.bio.net/mm/toxicol/1998-March/001698.html> Is acetylcholinesterase a Mg-dependent enzyme?

<https://www.inkling.com/read/rapid-review-histology-and-cell-biology-burns-cave-2nd/chapter-4/epithelial-tissue> Epithelia Tissue Info

http://en.wikipedia.org/wiki/Neuromuscular_blocking_drug Neuromuscular-blocking drugs block neuromuscular transmission at the neuromuscular junction. This is accomplished either by acting presynaptically via the inhibition of acetylcholine (ACh) synthesis or release or by acting postsynaptically at the acetylcholine receptors of the motor nerve end-plate.

http://en.wikipedia.org/wiki/Copper_protein Copper proteins (tyrosinase being one of them)

<http://news.vanderbilt.edu/2014/08/new-technique-accelerates-genome-editing-process/> New technique accelerates genome editing process (CRISPR)

http://en.wikipedia.org/wiki/Active_site Active Sites

http://en.wikipedia.org/wiki/Enzyme_inhibitor Enzyme Inhibitors (Activators)

[http://www.ijdonline.com/article/S1201-9712\(10\)02389-1/fulltext](http://www.ijdonline.com/article/S1201-9712(10)02389-1/fulltext) False-positive seroreactivity to *Borrelia burgdorferi* in a patient with thyroiditis

<http://en.wikipedia.org/wiki/CD98> CD98 forms LAT1 transporter for BCAA's

<http://www.uniprot.org/uniprot/Q01650> Large neutral amino acids transporter small subunit 1, SLC7A5

<http://en.wikipedia.org/wiki/Melanin> Melanin (starts with tyrosine)