

<p>(眼科学) 園田 康平 教授</p> <p>連絡先: oculus@eye.med.kyushu-u.ac.jp</p>	<p>研究内容 人間が外界から得る情報の80%以上が視覚情報であると言われる。眼は、眼内の組織の透明性を維持する機構と、光刺激を情報化して脳へ送達する中枢神経機能とを持ち合わせており、きわめて精巧な組織構造と特殊な免疫の仕組みを備えている。 これらの特性を脅かす病態が研究対象となる。具体的には、糖尿病網膜症・加齢黄斑変性・網膜剥離・増殖硝子体網膜症・未熟児網膜症などの眼内血管病変疾患、網膜色素変性・角膜変性などの遺伝性疾患、ぶどう膜炎・角膜炎などの炎症性疾患、さらに緑内障、腫瘍などを対象として、分子細胞生物学、免疫学、病理学、再生医学、人工知能技術・ロボット工学、次世代シーケンサーによる網羅的ゲノム検索、バイオインフォマティクス、久山町疫学研究、創薬研究など多角的なアプローチで病態の解明と治療法の開発を目指している。</p> <p>指導内容 (1) 細胞・動物実験によるサイトカイン発現制御やシグナル伝達機構の解析 (2) 臨床検体を用いた遺伝子変異の包括的・網羅的解析 (3) 網膜神経細胞へのダイレクトリプログラミング (4) 人工知能を用いた診断システム、ロボット眼科手術開発 (5) 久山町における眼疾患の疫学研究 (6) 疾患モデル動物を用いた線維増殖抑制薬の薬理学的研究</p>
<p>Department of Ophthalmology</p> <p>Professor Koh-Hei Sonoda</p> <p>E-mail: oculus@eye.med.kyushu-u.ac.jp</p>	<p>Our Research Interests More than 80% of all information from external environment is transformed as visual images in the eye and received by the human brain. The main characteristics of eye are the tissue transparency through the cornea and lens upon the retina, and the part of central nervous system function to transmit information to brain, both of which have extremely precise mechanism and have sophisticated immune system as well. There are several kind of refractive eye disorders which can critically threaten visual function; ocular vascular diseases such as diabetic retinopathy, age-related macular degeneration, retinal detachment, proliferative vitreoretinopathy and retinopathy of prematurity; genetic hereditary diseases such as retinitis pigmentosa and corneal dystrophy; ocular inflammatory diseases such as uveitis and keratitis; and other important refractory diseases such as glaucoma and intra/extra-ocular tumor. Our aims are to clarify the pathophysiological mechanism of these diseases and to develop a novel treatment using molecular, biological, immunological, pathological, regenerative medicine, artificial intelligence techniques, robotics, next-generation sequencing, bioinformatics, and ophthalmic epidemiology in Hisayama town.</p> <p>Teaching/Research Themes 1. Analysis of cytokine expression and signal transduction using in vitro/in vivo systems 2. Comprehensive genomic approach for ocular diseases including inherited retinal diseases, tumors, and complex diseases 3. Direct reprogramming of retinal nerve cells 4. Development of diagnostic systems using artificial intelligence and robotic eye surgery 5. Ophthalmic epidemiology in Hisayama town 6. Intraocular pharmacokinetics of anti-fibrotic agent in animal disease models</p>