About the Chukyo Group

The Chukyo Group is an ophthalmology group that comprises of 38 ophthalmologists and researchers, approximately 35 ophthalmological facilities within and outside Japan, and ophthalmological staff, including orthoptists (technicians) and nurses. We share various resources within the group, such as personnel, material, and information, and aim to provide advanced, cutting-edge ophthalmological treatment to patients. Additionally, we are committed to clinical research by providing education and training to young doctors and ophthalmological specialists, analyzing the details of examination and surgeries, and validating new techniques.

Doctors

Kazuo Ichikawa
MD, PhD
The Chairman of Chukyo Group
Chukyo Eye Clinic Institute of Visual Science Director

Tatsushi Kaga
MD, PhD
Department of Ophthalmology,
JCHO Chukyo Hospital Director

Mitsunori Watanabe
MD
Chukyo Eye Clinic Assistant Director

Norihiko Yoshida
MD
Department of Ophthalmology,
Japanese Red Cross Gifu Hospital Director

Takashi Kojima
MD, PhD
Department of Ophthalmology,
Keio University School of Medicine

Hiroyuki Sato
MD
Yuya satoh eye clinic Assitant Director
About the Chukyo Group Doctors

Shuya Hara
MD
Department of Ophthalmology.
Daiyuikai Daichi Hospital Director

Akihiro Hoshino
MD
Department of Ophthalmology.
Iida Municipal Hospital Director

Taisuke Matsuda
MD
Department of Ophthalmology.
JCHO Chukyo Hospital

Yoshimi Yokoyama
MD
Department of Ophthalmology.
JCHO Chukyo Hospital

Makiko Tsukui
MD
Department of Ophthalmology.
JCHO Chukyo Hospital

Chihiro Shima
MD
Chukyo Eye Clinic

Takanori Yasuzato
MD
Department of Ophthalmology.
Asama Nanroku Komoro Medical Center

Sho Yokoyama
MD
Department of Ophthalmology.
JCHO Chukyo Hospital
Introduction of doctors and researchers

**Doctors**

**Ryo Asano** MD
Department of Ophthalmology, JCHO Chukyo Hospital

**Toshio Mori** MD
Department of Ophthalmology, Iida Municipal Hospital

**Asato Hasegawa** MD
Department of Ophthalmology, JCHO Chukyo Hospital

**Kei Ichikawa** MD
Department of Ophthalmology, Japanese Red Cross Gifu Hospital

**Masaru Oguchi** MD
Department of Ophthalmology, Toyota Wakatake Hospital

**Hayato Mitamura** MD
Department of Ophthalmology, JCHO Chukyo Hospital

**Ikubun Osawa** MD
Department of Ophthalmology, Daiyukai Daiichi Hospital

**Ayako Sawaki** MD
Department of Ophthalmology, JCHO Chukyo Hospital
Doctors

Suguru Shiga  
MD  
Department of Ophthalmology,  
JCHO Chukyo Hospital

Shota Shiroyama  
MD  
Department of Ophthalmology,  
JCHO Chukyo Hospital

Researchers

Yoshihiko Tanabe  
MD, PhD  
Department of Ophthalmology,  
JCHO Chukyo Hospital

Shoko Tanabe  
MD, PhD  
Chukyo Eye Clinic  
Institute of Visual Science  
Honorary Director

Kiyoyuki Majima  
MD, PhD  
Myoganin Eye Clinic  
Director

Shu Goto  
MD, PhD  
Department of Ophthalmology,  
Toyota Wakatake Hospital

Kiyoshi Tanaka  
Prof  
Shinshu University  
Vice President (International Affairs),  
Professor, Academic Assembly (Engineering),  
Director of Global Education Center

Yoshiki Tanaka  
PhD  
Chukyo Medical Co., Inc.  
Doctor of Engineering
## Introduction of Research paper

Ophthalmologists and orthoptists in our group are conducting research such as congress presentation and research paper domestically and internationally for "research leading to medical practice which appeals globally". Here are some of the best research papers published in year 2018.

<table>
<thead>
<tr>
<th>No.</th>
<th>Title</th>
<th>Authors</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Subretinal Endoscopic Surgery to Treat Large Subretinal Hemorrhages Secondary to Age-Related Macular Degeneration.</td>
<td>Tatsushi Kaga, Takashi Kojima, Sho Yokoyama, Hiroyuki Sato, Norihiko Yoshida, Kazuo Ichikawa</td>
<td>RETINA. January 23, Volume Publish Ahead of Print</td>
</tr>
<tr>
<td>3</td>
<td>Novel Endoscope-Assisted Vitreous Surgery Combined with Atmospheric Endoscopic Technique and/or Subretinal Endoscopic Technique for Rhegmatogenous Retinal Detachment with Grade C Proliferative Vitreoretinopathy</td>
<td>Tatsushi Kaga, Sho Yokoyama, Takashi Kojima, Hayato Mitamura, Toshio Mor, Taisuke Matsuda, Hiroyuki Sato, Norihiko Yoshida, Kazuo Ichikawa</td>
<td>RETINA. March 08, Volume Publish Ahead of Print</td>
</tr>
<tr>
<td>5</td>
<td>Control-matched comparison of refractive and visual outcomes between small incision lenticule extraction and femtosecond laser-assisted LASIK</td>
<td>Takahiro Kataoka, Tomoya Nishida, Azusa Murata, Mayuka Ito, Naoki Isogai, Rie Horai, Takashi Kojima, Yoko Yoshida, Tomoaki Nakamura. Clinical Ophthalmology. Volume12, pp 865-873, Published 10 May 2018</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Impact of the anterior-posterior corneal radius ratio on intraocular lens power calculation errors</td>
<td>Asato Hasegawa, Takashi Kojima, Mana Yamamoto, Yukihiro Kato, Akeno Tamaoki, Kazuo Ichikawa</td>
<td>Clinical Ophthalmology. Volume12, pp 1549-1558, Published 27 August 2018</td>
</tr>
<tr>
<td>10</td>
<td>Developmental change of the biorbital angle in normal Japanese infants</td>
<td>Teiji Yagasaki, Yoshimi Yokoyama, Makiko Tsukui</td>
<td>Clinical Ophthalmology. Volume12, pp 2047-2051, Published 12 October 2018</td>
</tr>
</tbody>
</table>
Affiliated Hospitals & Clinics

Chukyo Group conduct high-level ophthalmic surgeries at facilities in Japan, China and Mongolia. Attending ophthalmologists will cope with various cases with their surgical techniques based on their rich experience.

Mongolia
1 Surgeon Dispatch Facility in Ulan Bator
Bolor Melmii Eye Clinic

China
1 Surgeon Dispatch Facility in Dalian
大連医科大学白内障研究中心
甘井子松江路眼科門診部
Cataract Center of Dalian Medical University
Songjianglu Eye Clinic of Ganjingzi Dalian

Full-time Doctor Dispatch Hospitals

Department of Ophthalmology,
JCHO Chukyo Hospital
Nagoya-City, Aichi Pref

Department of Ophthalmology,
Japanese Red Cross Gifu Hospital
Gifu-City, Gifu Pref

Department of Ophthalmology,
Iida Municipal Hospital
Iida-City, Nagano Pref

Department of Ophthalmology,
Daiyukai Daiichi Hospital
Ichinomiya-City, Aichi Pref

Department of Ophthalmology,
Asama Nanroku Komoro Medical Center
Komoro-City, Nagano Pref

Department of Ophthalmology,
Toyota Wakatake Hospital
Toyota-City, Aichi Pref
### Part-time Doctor / Surgeon Dispatch Facilities

<table>
<thead>
<tr>
<th>Prefecture</th>
<th>Facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aichi Pref.</td>
<td>5 Facilities in Nagoya City, Okazaki City and Toyokawa City</td>
</tr>
<tr>
<td>Gifu Pref.</td>
<td>2 Facilities in Kani City and Gujo City</td>
</tr>
<tr>
<td>Mie Pref.</td>
<td>1 Facility in Kameyama City</td>
</tr>
<tr>
<td>Hokkaido</td>
<td>1 Facility in Sapporo City</td>
</tr>
</tbody>
</table>

### Surgeon Dispatch Facilities

<table>
<thead>
<tr>
<th>Prefecture</th>
<th>Facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aichi Pref.</td>
<td>9 Facilities in Handa City, Kasugai City, Icinomiya City, Inazawa City, Seto City, Tsushima City, Anjo City and Toyohashi City</td>
</tr>
<tr>
<td>Gifu Pref.</td>
<td>2 Facilities in Gifu City and Ibi District</td>
</tr>
<tr>
<td>Nagano Pref.</td>
<td>2 Facilities in Simoina District and Matsumoto City</td>
</tr>
<tr>
<td>Miyagi Pref.</td>
<td>1 Facility in Sendai City</td>
</tr>
<tr>
<td>Chiba Pref.</td>
<td>1 Facility in Funabashi City</td>
</tr>
<tr>
<td>Osaka Pref.</td>
<td>1 Facility in Sakai City</td>
</tr>
<tr>
<td>Hyogo Pref.</td>
<td>1 Facility in Sanda City</td>
</tr>
<tr>
<td>Yamaguchi Pref.</td>
<td>1 Facility in Yamaguchi City</td>
</tr>
<tr>
<td>Kagoshima Pref.</td>
<td>1 Facility in Kagoshima City</td>
</tr>
</tbody>
</table>

### Part-time Doctor Dispatch Facilities

<table>
<thead>
<tr>
<th>Prefecture</th>
<th>Facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aichi Pref.</td>
<td>8 Facilities in Nagoya City and Ichinomiya City</td>
</tr>
</tbody>
</table>
Our Specialist Areas

At the Chukyo Group, all surgeons perform cataract surgery. The first goal for residents is to successfully perform the surgery, and for this purpose, assist surgeons and undergo training in the wet laboratory. In addition to cataract, specialist areas are categorized into vitreoretinal, glaucoma, cornea/ocular surface, refractive surgery, strabismus/amblyopia (pediatrics), ophthalmoplasty, and color vision. Doctors engage in clinical practice and research in their specialist areas, in addition to performing cataract treatment.

Cataract Team

Cataract treatment (surgery) is performed at all facilities of the Group. In particular, for providing treatment, the Chukyo Eye Clinic has adopted state-of-the-art technologies, such as ZEPTO®, which is an automatic anterior lens capsulotomy system; femtosecond laser; and VerifEye™ Lynk, which is an intraoperative wavefront aberration measurement device. Moreover, we have been conducting research on cataract treatment based on the data collected from the use of such technologies.

Doctors:
Kazuo Ichikawa, MD,PhD / Norihiko Yoshida, MD / Takashi Kojima, MD, PhD / Kei Ichikawa, MD
Mari Mitamura, MD / Ayako Sawaki, MD

Research Collaborater:
Kiyoyuki Majima, MD, PhD (Myoganin Eye Clinic, Director)
Vitreoretinal Team

We vitreoretinal team focuses on the endoscopic surgeries of the retina. From August 2018, joint research has been carried out at the Group’s four facilities on intraocular endoscopic surgery for rhegmatogenous retinal detachment. Additionally, the team is working on clinical research as well as surgery and has adopted state-of-the-art technologies, such as Navilas®, which is a navigated retinal laser photoocoagulation device, and rtx1™, which is an adaptive optics retinal camera for treating macular diseases.

Doctors:
Tatsushi Kaga, MD, PhD / Norihiko Yoshida, MD / Hiroyuki Sato, MD / Taisuke Matsuda, MD
Chihiro Shima, MD / Sho Yokoyama, MD / Toshio Mori, MD / Hayato Mitamura, MD

Glaucoma Team

Glaucoma used to be an ophthalmological disease that required hospitalization during operative treatment. However, by virtue of the increased use of micro-invasive glaucoma surgery (MIGS), early-stage cases no longer require hospitalization to undergo surgery in our group. Going forward, the team will collaborate with the vitreoretinal, cornea, and ophthalmoplasty teams of the Group, with the aim of providing glaucoma treatment that conserves visual function to the maximum possible extent.

Doctors:
Mitsunori Watanabe, MD / Ryo Asano, MD / Yuki Takagi, MD / Taisuke Matsuda, MD
Tatsushi Kaga, MD, PhD
Our Specialist Areas

Cornea/Ocular Surface Team

In corneal cross-linking (C-CXL), a keratoconus treatment method, the cornea/ocular surface team has commenced using the high concentration oxygen epi-on method, a new approach, in which the pericorneal oxygen concentration is elevated without removing the epithelium, instead of the existing epi-off method in which the epithelium is removed. Furthermore, the Nagoya Eye Clinic has adopted the Mosaic™ system to perform custom C-CXL. It goes without saying that the team performs various kinds of treatment for corneal diseases in addition to keratoconus, including full thickness corneal grafting, partial grafting such as descemet stripping automated endothelial keratoplasty and deep anterior lamellar keratoplasty, and amniotic membrane transplants.

Doctors:
Takashi Kojima, MD, PhD / Shuya Hara, MD / Asato Hasegawa, MD / Ayako Sawaki, MD

Strabismus/Amblyopia and Pediatric Ophthalmology Team

The strabismus/amblyopia team primarily treats strabismus in the Department of Ophthalmology of the JCHO Chukyo Hospital. Since few other facilities provide treatment for these diseases, this hospital is one of the hub facilities in Tokai area. Since 2018, the Daiyukai Daiichi Hospital and the Japanese Red Cross Gifu Hospital have also started performing strabismus surgery. Additionally, the team has been conducting research on the orbital angle for several years and has presented the findings with the following titles for AAPOS and ISA: “Developmental Change of the Bi orbital Angle in Normal Japanese Children” and “Abnormal Bi orbital Angle in Children with Infantile Exotropia.”

Doctors:
Yoshimi Yokoyama, MD / Makiko Tsukui, MD
Sho Ichikawa, MD
Oculoplastic surgeon Team

The Oculoplastic surgeon team performs oculoplastic surgery for ptosis and entropion, lacrimal duct surgery, surgery for tumors on the eyelids and conjunctiva, and treatment for eyelid and orbital inflammatory problems and blepharospasm. In Foursome 2018 Tokyo, the team reported a joint study with the Department of Ophthalmology, School of Medicine, Keio University, titled “An Evaluation of Lacrimal Fluid Storage Volume in Patients with Epiphora Using A Strip Meniscometry Tube,” and the study was evaluated positively. The team is planning to continue research on the dynamics of lacrimal fluid in epiphora.

Doctors:
Akihiro Hoshino, MD / Ikubun Osawa, MD / Yoshihiko Tanabe, MD, PhD / Yuri Esaka, MD

Color Vision Team

The color vision team examines the color vision and provides consultations at the Chukyo Eye Clinic Institute of Visual Science, the Department of Ophthalmology of the JCHO Chukyo Hospital, and the Department of Ophthalmology of the Japanese Red Cross Gifu Hospital. The team can provide definitive diagnosis with congenital color vision defect using an anomaloscope. In particular, at the Chukyo Eye Clinic Institute of Visual Science, various pseudoisochromatic plates and lantern tests are available, enabling detailed examinations for symptoms, including mild abnormalities. Moreover, the team has been working on research into color vision, color fields, and photosensitivity disorders, with the aim of conducting the examinations for color fields and color vision in clinical practice.

Doctors:
Shoko Tanabe, MD, PhD / Kazuo Ichikawa, MD, PhD / Hiroyuki Sato, MD / Sho Yokoyama, MD / Mari Mitamura, MD

Research Collaborater:
Prof. Kiyoshi Tanaka (Shinshu University, Vice President -International Affairs-) / Yoshiki Tanaka, PhD (Chukyo Medical Co., Inc. Doctor of Engineering)
Operation Records

Transition in number of cataract surgery (5 years)

Surgery in overseas

Dalian (China)

Ulan Bator (Mongolia)
## Number of surgeries by facilities (3 years)

### 2018

<table>
<thead>
<tr>
<th></th>
<th>JCHO Chukyo Hospital</th>
<th>Japanese Red Cross Gifu Hospital</th>
<th>Iida Municipal Hospital</th>
<th>Daiyuikai Daichii Hospital</th>
<th>Group Hospitals</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cataract</td>
<td>1,727</td>
<td>1,103</td>
<td>663</td>
<td>1,366</td>
<td>11,700</td>
<td>16,559</td>
</tr>
<tr>
<td>Vitreoretinal</td>
<td>744</td>
<td>235</td>
<td>171</td>
<td>287</td>
<td>211</td>
<td>1,648</td>
</tr>
<tr>
<td>Glaucoma</td>
<td>507</td>
<td>103</td>
<td>75</td>
<td>102</td>
<td>49</td>
<td>836</td>
</tr>
<tr>
<td>Cornea/Ocular surface</td>
<td>120</td>
<td>63</td>
<td>31</td>
<td>12</td>
<td>136</td>
<td>362</td>
</tr>
<tr>
<td>Strabismus</td>
<td>129</td>
<td>2</td>
<td>0</td>
<td>10</td>
<td>0</td>
<td>141</td>
</tr>
<tr>
<td>Oculoplastic</td>
<td>278</td>
<td>50</td>
<td>115</td>
<td>85</td>
<td>115</td>
<td>643</td>
</tr>
<tr>
<td>Others</td>
<td>150</td>
<td>8</td>
<td>8</td>
<td>54</td>
<td>41</td>
<td>261</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3,655</strong></td>
<td><strong>1,564</strong></td>
<td><strong>1,063</strong></td>
<td><strong>1,916</strong></td>
<td><strong>12,252</strong></td>
<td><strong>20,450</strong></td>
</tr>
</tbody>
</table>

* Keratoplasty is included in cornea / ocular surface.

### 2017

<table>
<thead>
<tr>
<th></th>
<th>JCHO Chukyo Hospital</th>
<th>Japanese Red Cross Gifu Hospital</th>
<th>Iida Municipal Hospital</th>
<th>Daiyuikai Daichii Hospital</th>
<th>Group Hospitals</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cataract</td>
<td>1,561</td>
<td>1,092</td>
<td>615</td>
<td>1,160</td>
<td>11,684</td>
<td>16,112</td>
</tr>
<tr>
<td>Vitreoretinal</td>
<td>764</td>
<td>244</td>
<td>162</td>
<td>276</td>
<td>250</td>
<td>1,696</td>
</tr>
<tr>
<td>Glaucoma</td>
<td>381</td>
<td>99</td>
<td>45</td>
<td>53</td>
<td>54</td>
<td>632</td>
</tr>
<tr>
<td>Others</td>
<td>513</td>
<td>207</td>
<td>130</td>
<td>128</td>
<td>204</td>
<td>1,182</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3,219</strong></td>
<td><strong>1,642</strong></td>
<td><strong>952</strong></td>
<td><strong>1,617</strong></td>
<td><strong>12,192</strong></td>
<td><strong>19,622</strong></td>
</tr>
</tbody>
</table>

### 2016

<table>
<thead>
<tr>
<th></th>
<th>JCHO Chukyo Hospital</th>
<th>Japanese Red Cross Gifu Hospital</th>
<th>Iida Municipal Hospital</th>
<th>Daiyuikai Daichii Hospital</th>
<th>Group Hospitals</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cataract</td>
<td>1,589</td>
<td>1,157</td>
<td>509</td>
<td>1,342</td>
<td>11,534</td>
<td>16,131</td>
</tr>
<tr>
<td>Vitreoretinal</td>
<td>777</td>
<td>237</td>
<td>152</td>
<td>272</td>
<td>101</td>
<td>1,539</td>
</tr>
<tr>
<td>Glaucoma</td>
<td>294</td>
<td>65</td>
<td>58</td>
<td>46</td>
<td>16</td>
<td>479</td>
</tr>
<tr>
<td>Others</td>
<td>560</td>
<td>145</td>
<td>158</td>
<td>109</td>
<td>190</td>
<td>1,162</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3,220</strong></td>
<td><strong>1,604</strong></td>
<td><strong>877</strong></td>
<td><strong>1,769</strong></td>
<td><strong>11,841</strong></td>
<td><strong>19,311</strong></td>
</tr>
</tbody>
</table>