Diagnostics serve to determine whether a specified disease or disease process is present in a living organism and anticipate disease earlier and better. The quality of research and development in the BioAlps cluster encourages innovative start-ups and multinationals alike to work on diagnostics for conditions ranging from celiac disease to HIV/AIDS. Diagnostics is a high growth market, with the global IVD market predicted to grow to US$ 84 billion by 2023. In Switzerland, 8% of medtech manufacturers produce in vitro diagnostics, which represented some US$365 million in 2015. There is rapid growth in new segments including molecular diagnostics, point of care and companion diagnostics.

The BioAlps cluster gathers together the competences and knowhow of many innovative companies which are developing diagnostics for earlier detection of HIV, different cancers, infectious diseases and other conditions. The region is an outstanding place to develop a broad scope of diagnostics ranging from in vitro diagnostics (IVDs), sophisticated technologies performed in clinical laboratories, to simple self-tests, such as for pregnancy. This is why Aimago and Abionic, two start-up/spin-offs of the Swiss Federal Institute of Technology Lausanne (EPFL) and mid-cap companies like Bracco Imaging have set up in the region.

Using all the resources of Western Switzerland, companies are successfully accessing research, technology transfer, funding, technological knowhow and much more besides. For example, companies and research institutions in the cluster are working on systems that can detect and quantify multiple DNA- or RNA-based biomarkers in a wide variety of patient sample types; biomarkers for hormone dependent cancers; determining unique biomarkers patients’ tumors and correlating biomarkers to drug response. In Western Switzerland, convergent technologies are being integrated into the diagnostic sector, with microfluidic chips, biosensors, genomics and advanced diagnostic imaging directed towards developing non-invasive technologies for increased patient comfort.

ABIONIC
Revolutionizing the world of in vitro diagnostics

Founded in 2010 by Nicolas Durand and Iwan Märki, Abionic developed its nano-, bio- and medical- technology within the Swiss federal Institute of Technology in Lausanne (EPFL). Already in 2012, Abionic obtained the ISO 13485 quality certification for research and development, production and marketing of products for the in-vitro diagnostics market. The company’s benchmark is winning no less than 20 prestigious startup awards and 4 times best med-tech startup. In 2012, Abionic finalized a Series A financing round and in 2014, a Series B financing for a total of CHF 8.2 million led by MedHoldings SA and including Polytech Ventures & Cie SCPC, Blue Ocean Ventures, Business Angels Switzerland (BAS) and Fongit Seed Invest. The ultra-fast abioSCOPE, a CE-marked reading system designed to detect allergies, received the «Swiss Excellence Product» award in 2013 and the world’s fastest blood test diagnostic platform that detects killer SEPSIS, filed FDA registration in 2017, brings nanotechnology directly to healthcare professionals for everybody’s wellbeing.
Western Switzerland offers a robust array of business and academic institutions with leading technologies and research in the field of diagnostics, whether IVD, diagnostic imaging or molecular diagnostics. Academic laboratories and companies cross-fertilize successfully to create a dynamic, entrepreneurial environment to push the boundaries of knowledge.

The lists below are non exhaustive and showcase some examples of the work being done in the region. Find more information in our extensive database: bioalps.org/community/ and, for the six Alpine regions, alpslifesciencesearch.com

### THE LEADING ACADEMIC DIAGNOSTICS RESEARCH IN WESTERN SWITZERLAND

**Geneva University UNIGE &**

- Department of Genetic & Laboratory Medicine and Laboratory Medicine service
- Diagnostic imaging, neurodiagnostics cytopathology, genetic diagnostics, molecular diagnostics
- New medical diagnostics based on biomarkers, human toxicology and bioinformatics
  - medecine.unige.ch

**Geneva University Hospitals HUG &**

- Institute of Molecular Imaging
- Translational molecular imaging or animal imaging, nanotechnology, radiation chemistry, and modeling and focus on neuro-imaging, chronic diseases, neurological degeneration, and aging
  - unige.ch/
  - medecine/itmi/

**University Hospital of Lausanne CHUV**

- Institute of Microbiology
- Microbiology diagnosis of infectious diseases
  - chuv.ch/emul

**Swiss Federal Institute of Technology Lausanne EPFL & Geneva University UNIGE**

- Medical Image Processing Lab
- Interface between signal processing and medical imaging, signal and image processing and functional imaging.
  - msplab.epfl.ch

**Swiss Federal Institute of Technology EPFL**

- School of Engineering Institute of Microengineering Laboratory of Microsystems
- BioMicrosystems - Microfluidic, lab-on-a-chip, BioMems - for handling, analysis and culture of biological cells
  - lms4.epfl.ch

**Centre Suisse d’Électronique et de Microtechnique CSEM**

- Nanotechnology & Life Sciences
- BioMicrosystems – integrated biosensing and monitoring biomechanics, micro-cell reactors, toxicology, biofunctional surface engineering
  - csem.ch

- Biosurface Engineering
- BioMicrosystems – ion-selective sensing, immunosensing, electrochemical sensing

- Laboratory Instrumentation & Automation
- BioMicrosystems – microfluidics, liquid handling, cell handling, sensor integration, robotics and automation

**University of Applied Science – Western Switzerland HEI-G-VD**

- Institute Life Technologies
- In vitro medical diagnostic (IVD) systems of molecular (nucleic acid, PCR) and immunochemistry (peptides, proteins) based platforms
  - itv.hevs.ch

**University of Berne UNIBE**

- Institute for Veterinary Bacteriology Diagnostic Laboratories of the Vetsuisse Faculty
- In vitro diagnostic pathology including necropsies and biopsies of pet and food animals as well as exotic animals, wild life and fish
  - vetsuisse.unibe.ch

**University of Berne UNIBE**

- Department of Chemistry and Biochemistry
- Genetic diagnostics using eximer- based molecular beacons and molecular diagnostics using molecular probes for the detection of homopurine sequences
  - haener.dcb.unibe.ch

**University of Applied Science – Western Switzerland HEI-G-VD**

- BioEngineering Group
- BioMicrosystems - biochips Diagnostic imaging: Image processing and visualization
  - heig-vd.ch/
  - international

### NON EXHAUSTIVE LIST OF INNOVATIVE DIAGNOSTICS COMPANIES IN THE BIOALPS CLUSTER

<table>
<thead>
<tr>
<th>Company</th>
<th>Sector(s)</th>
<th>Website</th>
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<tbody>
<tr>
<td>ABCDX</td>
<td>Molecular Diagnostics, Neuroscience</td>
<td>abcdx.ch</td>
</tr>
<tr>
<td>ABIONIC</td>
<td>In Vitro Diagnostics, Allergy</td>
<td>abionic.com</td>
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<td>AUGURIX</td>
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<td>augurix.com</td>
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<tr>
<td>BIO-RAD</td>
<td>In Vitro Diagnostics, Blood</td>
<td>bio-rad.com</td>
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<td>BRACCO IMAGING</td>
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<td>braccoimaging.com</td>
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<td>ERIB LTD</td>
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<td>erib.ch.com</td>
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<td>INVIVOSWISS</td>
<td>In Vitro Diagnostics, Drug Development</td>
<td>invivoswiss.ch</td>
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<td>NEOGENOMICS</td>
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<td>seyonic.com</td>
</tr>
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<td>UNILABS</td>
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<td>unilabs.ch</td>
</tr>
<tr>
<td>XSSENSIO</td>
<td>BioMicrosystems, Healthcare</td>
<td>xsensio.com</td>
</tr>
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The fact sheet provides a view of the key players in the sector at any given time; it is not comprehensive and is subject to regular updates. This current edition was updated in Autumn 2019.