

# Response to Office Action

## 1 Common coined word VIRION

### 1.1 Etymology

- The term VIRION was created by French scientist Dr. André Lwoff *et al* in 1959. Dr. Lwoff received the Nobel Prize for Medicine or Physiology in 1965.
- “Following an earlier proposal of the term viricule, Lwoff et al. (1959), coined the term virion.”, *Virology: Terms and Etymology*, E. Battaglia (2007).
- VIRION is a ubiquitous term that has been in the *public domain* for approximately 60 years. It is found in books and scientific journal articles. A search on Amazon.com for “VIRION” will even show fictional books; for example, one involves a detective, the other a mythical warrior. The word is known beyond the scientific domain and has resided in the *public domain* long before companies here sought to use it.
- The term entered the *public domain* when it was published in a scientific journal by Lwoff in 1959.

#### Remarks on the Characteristics of the Infectious Virus Particle.

**Foreign Title :** Remarques sur les caracteristiques de la particule virale infec-tieuse.

**Author(s) :** LWOFF, A. ; ANDERSON, T. F. ; JACOB, F.

**Journal article :** *Ann. Inst. Pasteur* 1959 Vol.97 No.3 pp.281-9 ref.17

**Abstract :** The structure of the virus particle is discussed, and a new terminology is proposed to describe its constituent parts. The particle itself is termed the *virion*; it consists of an envelope of protein, the *capsid*, made up of subunits or *capsomeres*, the whole enclosing the genetic material. *D. J. Bauer.*

- It is understood that, ordinarily, a single word cannot be copyrighted, however exceptions have been made. At question here is whether the *creative authorship* by a scientific Nobel Laureate of a coined word that has achieved widespread adoption qualifies. If true, such a copyright would still be in force.
  - *Works published after 1923, but before 1978 are protected for 95 years from the date of publication.* If the work was created, but not published, before 1978, the copyright lasts for the life of the author plus 70 years.
  - As a modern generic term, the *creative authorship* would remain with those who coined it.

### 1.2 Use of common public domain words for a trademark

Common words may be used for trademarks. The textbook example seems to be Apple, Inc. The general usage of the word “apple” is typically considered to be a fruit. Since Apple, Inc. sells computers, smartphones, music / media products & services - unrelated to fruit - the connection is arbitrary and unobvious. Conversely, if **Apple, Inc.** was in the produce business, then selling apples, apple sauce, or apple juice the connection would not be arbitrary. In this instance, the company name would be descriptive of its products; it would likely be classified as “merely descriptive”.

Common or expressions words don’t always qualify for trademark, as in the following example:

*In 2014 the USPTO rejected nine applications for the phrase BOSTON STRONG, which grew from the 2013 Boston Marathon bombing. In rejecting, the USPTO wrote that “consumers are accustomed to seeing this slogan or motto commonly used in everyday speech by many different sources.”*

<https://secureyourtrademark.com/can-you-trademark/common-words-phrases/>

### 1.3 Qualified trademark names

As a professional in software development it is a common experience to have variable names that “conflict” in software code. The same variable is used by two software functions, differently. Software has multiple ways to handle this (e.g., name spaces), but *qualifying* a name is a good practice too. The USPTO likewise mentions the notion of *qualifying language*.

In this context, we appear to have multiple company name conflicts, which may cause confusion if operating in the same marketing channels, with the same commercial products and consumers. Qualifying a name clarifies scope and purpose. For example, if a company is “skilled in the art” of *medical laboratory diagnostics*, the name could be *qualified* as **Virion LABORDIAGNOSTIK**. If a company is “skilled in the art” of *therapeutics*, it may be *qualified* as **Virion Therapeutics**, or the like. No doubt these may be construed as descriptive, but they are useful in clarifying the product and/or service intent. VIRION as a naked word is generally known as the common term – associated with viruses. A standalone product/service with the same name suffers similar confusion with the *public domain* name.

In the case of Virion Research Group (**VRG**), VIRION is a *common word*, and RESEARCH GROUP is a *common expression*. A search of RESEARCH GROUP in the TESS trademark database shows many companies use this common expression in their trademark. Companies representing a varied range of business areas. Since RESEARCH GROUP must be qualified, the expression is *de facto* arbitrary and common.

Nothing in the composite name VIRION RESEARCH GROUP alludes to software databases and algorithms such as machine learning. Our tools, primarily focused on proteins / amino acids and genetics, are generic and hardly particular to viruses. While viruses contain proteins, proteins are present in most aspects of life molecules, many unrelated to viruses. In other words, a direct connection to viruses cannot be inferred from **VRG’s** actual work products, services or company name. Computer-based modeling on a fundamental/basic research level is far different than, for example, FDA/EMA-approved and regulated medical equipment used for patient diagnostics, involving physicians and medical laboratory testing performed by qualified laboratory technicians.

Given that the dominant scientific usage of the single word VIRION is in the public domain, I would argue that the more likely primary source of confusion already exists between the long-standing public use and private use by a company. Qualifying the name differentiates from the common scientific usage.

## 2 Related technical definitions

To understand and contrast how the named parties operate some relevant definitions from referenced documents are listed. Definitions were borrowed from internet searches. Dictionary definitions are also included in the USPTO action(s).

***in vitro***. (of a process) performed or taking place in a test tube, culture dish, or elsewhere outside a living organism.

***in vivo***. (of a process) performed or taking place in a living organism. "fluid transport was measured in vivo"

***therapeutics***.

- the branch of medicine concerned with the treatment of disease and the action of remedial agents.
- a treatment, therapy, or drug. "current therapeutics for asthma"

***in silico***. (of a process) performed or taking place in a computer. See: [https://en.wikipedia.org/wiki/In\\_silico](https://en.wikipedia.org/wiki/In_silico)

Computer advances have completely changed the biochemistry landscape. Whereas in the past computers augmented chemistry-oriented laboratory experiments / diagnostics, the industry has expanded to where extensive research is commonly done entirely on a computer. **VRG** is primarily a scientific software company, with no chemistry laboratory facilities.

- [https://en.wikipedia.org/wiki/In\\_silico](https://en.wikipedia.org/wiki/In_silico)
- [https://www.rcsb.org/pages/thirdparty/molecular\\_graphics](https://www.rcsb.org/pages/thirdparty/molecular_graphics)
- <https://www.sciencemag.org/news/2018/12/google-s-deepmind-aces-protein-folding>

Note that Google performed amazingly well in a recent protein folding competition with entirely computer-based algorithms. Many companies and software tools function independent of any chemistry laboratories. **VRG**, like many biotech companies, will likewise explore *machine learning* applied to new geometric perspectives on proteins and their amino acids, as well as genetic sequences in the future.

While perhaps not obvious, there are 3 distinct tiers in the above, and they relate to the business of parties involved. The top clinical laboratory tier deals with medical agency approved diagnostics equipment and medical diagnostic services, involving physicians and clinics (**medica**, **Virion LABORDIAGNOSTIK**). The middle tier is involved with drug discovery & development(**Virion Therapeutics**). The bottom tier is where **VRG** operates, working on advanced research / software tools / algorithms / simulations with a key initial focus on protein folding. Each primarily operates in a distinct market segment.

By way of analogy, **VRG** products/services could conceivably be used by the other companies. A physician may order a medical lab test from **medica** where a medicine from **Virion Therapeutics** is subsequently prescribed. But the specific products, services, and customers of each are significantly unrelated and therefore disparate.

### 3 Company Profiles and Trademark Applications

Multiple companies have been vying to associate the generic term VIRION with their company names. In my case, I only became aware of existing trademark(s) when I filed my application. I don't see this as an issue because **VRG** is fundamentally different than **medica**, therefore no significant confusion will arise.

#### 3.1 **medica** MEDICAL LABORATORIES Dr. F. KAEPPELI AG

Company information was obtained from **medica's** publicly accessible website: <http://www.medica-labor.ch/index.php/>

Additional details may be found in the attached file. (*medica – Supporting Info*).

- **Overview.** **medica** is involved in a wide range of medical diagnostics services. As an “umbrella” company, they offer a comprehensive set of clinical diagnostics across multiple laboratories. They employ physicians, scientists, and laboratory technicians primarily focused on analyzing body fluid samples of both humans and animals. They offer diagnostics for genetics, viruses, cancer markers, gynecology, and many other medical areas.
- **History.** **medica** and its related group of companies have a rich history. The original trademark was granted to **INSTITUT VIRION AG** in 1984. **medica** acquired **INSTITUT VIRION AG** in 2013. **INSTITUT VIRION AG** sold a range of medical diagnostics apparatus (it was unclear as to the extent of continued marketing of acquired products).
- **Classification.** The earlier trademark application by **INSTITUT VIRION AG** highlights medical / diagnostic equipment. It also mentions “*in vitro* testing”. The original application clearly calls out Class 01 and Class 09 as primary classes. Given the nature of its products these were appropriate classes. The current **medica** VIRION trademark is of primary Class 09, having amended the purpose to be “Laboratory equipment, laboratory glassware, laboratory centrifuges, laboratory storage tubes; photometers”. This, too, is an accurate depiction of medical equipment located in a clinical diagnostics laboratory that use agency-approved, “wet” chemistry-based apparatus. In contrast, **VRG** originally adopted a different primary classification: *CLASS 42 (Computer, scientific & legal) Scientific and technological services and research and design relating thereto: industrial analysis and research services; design and development of computer hardware and software; legal services.*
- **Consumers.** With walk-in services for ordinary citizen patients, and presumably lab work ordered by medical practitioners such as a physician, the “consumer” for diagnostics is quite different than **VRG's** target market for scientific computing. Diagnostics typically require blood or other bodily fluids where samples are analyzed with chemistry-based medical lab equipment. It is unclear from available information if **medica** continues to market medical apparatus such as found in the original trademark application.
- **Marketing / distribution channels.** In the initial application a memo dated Feb. 5, 1985 states: “Applicant’s product, on the other hand, will generally be directed to laboratories and similar institutions that perform *in vitro* tests. Thus, the purchasers are highly sophisticated for each product”. **VRG's** data platform will eventually be partially hosted in “the cloud”. Any sophisticated consumer would be able to differentiate a cloud-hosted service from a clinical laboratory. There would be no confusion. Computers and GPUs used for **VRG's** work would not be hosted in a medical / chemistry laboratory containing the equipment stated in **medica's** classification. A review of laboratory equipment providers such as ThermoFisher Scientific, VWR, Coleman Scientific, Sigma Aldrich, Chemglass Life Sciences *et al* marketed laboratory equipment products reveals they do not sell scientific databases or scientific modeling software. Conversely, having worked in the modeling space for several years, I’ve never seen lab equipment (e.g., glassware) being marketed to the *in silico* computing market segment. These markets and distribution channels are distinct, and therefore disparate.

- **Geographic implications.** **VRG** is not involved in medical diagnoses where fluid samples are collected and analyzed. Samples such as blood must be handled carefully by qualified medical personnel. While samples may be transported great distances, “lab work” is typically performed on a more geographically local basis (as in, Europe, or perhaps Switzerland and bordering countries). A conflict may arise when domain names are used, due to global reach of the internet. Since I purchased the rights to virion.com via a standard, publicly available electronic domain bidding process years ago, the single unqualified word VIRION is unavailable as a domain name. Again, I assert the generic term VIRION resides in the public domain. I will also consider sharing virion.com to further mitigate confusion by creating a landing page that can guide a visitor to the appropriate respective company.
- **Trademark and design.** In the same February 5, 1985 memo referenced above, by counsel for the applicant (**INSTITUT VIRION AG**), the following assertion was made: “Thus, the mark \*VIRION\* could potentially convey the following impression: a viral atom or a viral process”. To anyone skilled in the particular art of chemistry and virology, the VIRION graphic would reasonably be interpreted as a benzene ring (with stems for hydrogen atoms) encapsulating a mimic of a *globular virion*. Virions are typically encased by a “capsid”, a protein shell of a virus. It is common for a capsid to have a regular, repeating pattern of subunits such as found in their graphic. Given a company name with the title VIRION, a chemistry symbol, and a virion-like symbol a person with a background in virology would reasonably expect the company to be involved in some fashion with viruses. In fact, **medica** offers multiple diagnostics for viruses (e.g., zika, hepatitis B, and others). If **Virion Therapeutics** is “merely descriptive”, it is unclear why the current trademark doesn’t face similar challenges. **medica**, as a family of companies (some listed at the same address), has a company called **Virion LABORDIAGNOSTIK**, with usage different than the trademark, and is likewise *qualified* with a word that seems a portmanteau (blend) of *laboratory* and *diagnostics*.
- **Trademark cancelation and reapplication.** Per the original application, **INSTITUT VIRION AG** filed using International Classes 01 and 09. **medica** filed using International Class 09. It is unclear if by canceling a trademark, as was done here on or about March 14<sup>th</sup>, 2017, that the International Registration Date of 02/13/1984 would carry forward (also, there was some mention of the graphic being slightly different). The new trademark was granted December 12<sup>th</sup>, 2017. Apologies for my naïveté here; it is unclear if the *interim gap/lapse between cancelation and new grant date* is significant when other parties likewise have overlapping *bonafide intent to use*, especially if predating **medica’s** apparent application filing date of October 18<sup>th</sup>, 2016. In other words, is a cancelation complete and final, or is there special consideration and continuity afforded to the applicant during the new application review period (whether **medica** had precedence at the moment of cancelation).

**Conclusion.** **medica’s** products, services, geographic reach, consumers, and marketing channels are distinct and unrelated to **VRG**. Therefore, I respectfully submit that the actual *likelihood of confusion* is negligible and the *action* concern is not valid based upon further information provided here.

## 3.2 Virion Therapeutics

Company information was obtained from **Virion Therapeutic's** publicly accessible website: <https://www.viriontx.com/>

There you will find the following clearly stated company mission:

*“T-cell based Immunotherapies for Cancer and Chronic Infectious Diseases”*

- **Overview.** **Virion Therapeutics** “has extensive domain knowledge in antiviral, vaccine and oncology therapeutic arena.” Although a new business concern, they are bringing to market licensed products and techniques developed over many years of research. They have an extensive, experienced team of physicians, scientists, business, and legal professionals. Products to include vaccines and other medicines used to alleviate or remedy illnesses. Research services targeted / relative to their respective market. Their members have deep clinical trials experience.
- **History.** Founded in early 2018. Products mentioned on their website include ChiVax™, ChiVax-gD™ and an HPV vaccine. Some planned products are apparently in various stages of development/release, such as “preclinical” or for “First-Human evaluation”.
- **Consumers.** Vaccines and medicines would be used by physicians prescribed to patients. With a clearly stated focus of “vaccines and medicine”, any related scientific consulting will differ in focus from **VRG**.
- **Marketing / distribution channels.** Vaccines and medicines are marketed and distributed in well-known ways, and as *physical* products, delivery is different than software-based products.
- **Trademark and Design.** **Virion Therapeutics** uses a qualified name.

Medical products are regulated. It is not uncommon for an *established* pharmaceutical company to spend upwards of 5-10 years to bring a product safely to a market. **VRG** has a focus on fundamental research approaches and tools, and will not function in a regulated market (e.g., require FDA approvals).

Clearly **VRG** and **Virion Therapeutics** have, in good faith, bonafide intentions in terms of commerce in their respective but distinct fields. As will be shown in terms of “first use anywhere”, **VRG** expressed a *bonafide intent to use* prior to **Virion Therapeutics**. (See: email correspondence dated 9/7/2011 in attached).

In terms of “first use in commerce” I must admit my confusion as to its meaning and may have opted for a suboptimal basis. Any startup, and perhaps even more so a research-oriented high-tech biotech company, will take time to bring product to market. As such it will involved purchasing equipment and tools that I thought conferred commerce.

**VRG** began using its name while buying computing equipment (we built our own workstations / servers), which I perhaps mistakenly believed to be using the name in a commercial context. That said, biotech typically involves a collaboration between academia and commercial entities (**Virion Therapeutics** being an example). **VRG** has adopted a common approach whereby academia receives software products at minimal or no costs (typically via a *dual licensing scheme*). Open source software is common in the scientific community, and many open source programs are trademarked. See: [https://en.wikipedia.org/wiki/List\\_of\\_trademarked\\_open-source\\_software](https://en.wikipedia.org/wiki/List_of_trademarked_open-source_software)

The law states, in effect: *The date of first use in commerce is the date when the goods were first sold or shipped, or the services were first rendered.* While not sold, this collaboration over multiple years has shared (“shipped”) technological information and software (see attached regarding a SQL schema) with academia. That **VRG** and **Virion Therapeutics** operate in entirely different commercial segments means that the *first use in commerce* is not a relevant issue.

**Conclusion.** **Virion Therapeutics** products, services, consumers, and marketing channels are distinct and unrelated to **VRG**. Therefore, I respectfully submit that the actual *likelihood of confusion* is negligible and the *action* concern is not valid based upon further information provided here.



### 3.3 Virion Research Group (VRG)

- **Overview.** The Protein Folding Problem (See: Wikipedia) is well-known to many technical persons working in the biotech industry. While tremendous advances have been made, in particular due to computing advances, it is still a very active field of research. A traditional focus is to accelerate *chemistry and physics approaches*, and with the emergence of GPUs (aka general-purpose graphics cards), as well as using advanced algorithms such as *machine learning*, very effective approaches have been developed. Still, folding is a compute-intensive activity often utilizing high-end, highly parallel hardware to model even small proteins for short time periods. A primary **VRG** goal is to discover new ways to reduce folding time and computing resources required, as well as to fold much larger proteins than current state, thereby enhancing scientific/medical research. Our work will enable us to further market or share (open source) scientific data management services / tools / algorithms.
- **History.** First stated plans to explore concepts and plan for eventual company formation was at least as early as 9/7/2011. **VRG** is currently a small, self-funded startup whose members / collaborators have held professional backgrounds in software engineering and research, bio/physics, and biochemistry (multiple at the PhD level).
- **Classification.** Application was originally filed as Class 42. The *action* also mentions Class 09 and Class 45. As clarified below, I will amend to add Class 09, and move to restrict mention of “intellectual property consultation” or the like.
- **Consumers.** Professional and academic biotech researchers who work *in silico*. Also, to eventually provide tools/access to students at all academic levels at reduced or no cost (common *dual licensing scheme*).
- **Marketing / distribution channels.** *Scientific data management* and *software tools* may reside in the *cloud*, executed with *on-premise* servers / workstations, or as combination of such environments, either by **VRG** or any commercial company / academic institution. **VRG** will variously provide capability as a service, or spec / build computing resources for on-premise servers. Building, hosting and delivering software / computing platforms is common and requires no special channels. Even massively parallel computing equipment is readily available for purchase (computer gaming and e.g. Bitcoin have driven the High-Performance Computing (HPC) industry). Protein and genetic sequence data files (PDB, *et al*) are very complex. **VRG** is designing special data file parsing tools and database schemas / compute platforms to manage and process the data while making it simple for researchers to access and analyze via a variety of tools.
- **Trademark and Design.** **Virion Research Group** uses a *qualified* name. The composite of common terms “Virion” and “Research Group” is likewise generic. **VRG** has no plans to focus specifically/primarily on viruses (vaccine medicines or related medical diagnostics or equipment). While viruses typically contain proteins (*viral capsids* in particular), proteins are found in a vast range of other biochemical structures. Nothing in the company our name implies a direct connection to drugs, medical diagnostic equipment, or clinical diagnostics relating to viruses.

## 4 Response to Action

### 4.1 Likelihood of Confusion

Biotechnology is an industry dominated by highly skilled individuals, whether as a physician (MD), scientist (PhD), management (MBA), as a laboratory clinician/technologist, or engineer. In this matter, the other parties are working with medicines, medical instrumentation, or clinical diagnostics for human/animal patients, and function under the federal regulation of the FDA in the United States or the EMA in Europe. The original trademark holder clearly stated their customers to be “highly discriminating”. Where ordinary patients are the consumer, physicians or other certified medical professionals are involved. These particular “purchasers” *do not travel in the same channels of trade*.

Given the scope of coverage needed, trademark categories tend to be broad and definitions may be vague or overloaded. On closer examination, as in this case, a distinction can be made that parties involved here operate in significantly different areas. Products, services, consumers, and marketing channels are sufficiently disparate and therefore unlikely to cause confusion, particularly with sophisticated consumers.

- **Similarity of Marks.** Both use the generic/common root word VIRION, which was coined and placed in the *public domain* prior to the original trademark date. **medica** now also uses a qualified form in for one of their companies, **Virion LABORDIAGNOSTIK**. The respective companies operate in unrelated commercial areas, and therefore the *likelihood of confusion* is negligible.
- **Relatedness of Goods and Services.** As shown previously, in actuality there are no correlations based on significant criteria. The likelihood that a walk-in clinical diagnostic *service* or medical diagnostic *apparatus* would be confused with a cloud-hosted database of protein or genetic sequence data by a skilled medical/scientific professional is negligible. Services for ordinary patient consumers (walk-in) are geographically disparate. The marketing and product distribution channels and services are distinct and unrelated. The assertion that “goods and services are presumed to travel in the same channels of trade to the same consumers” is not accurate. The assertion that “applicant offers research services which are conducted in a laboratory” is not valid; today a large body of scientific research is done *in silico* and not associated in any way with a traditional clinical “wet” chemistry laboratory setting, as found at **medica**. For example, our two development servers are presently running in residential basements for the interim (soon to be globally accessible remotely via VPN. We will also soon explore pushing our scientific data to the Microsoft Azure cloud). **VRG** built our servers/workstations with general purpose computer components, purchased online, primarily from **NewEgg**.

### 4.2 Prior Pending Applications Advisory

**Virion Therapeutics** applications precedes ours. However, our use of the term VIRION predates the formation of that company. As shown previously, given the actual products, services, consumers, and marketing / distribution channels, the *likelihood of confusion* is negligible. Therefore, I assert dates of First Use (Anywhere, in Commerce) are not relevant in this matter. Additional related information as follows. Also, see attachment *VRG – Supporting Info*.

- **First Use Anywhere.** The supporting attachment shows bonafide intent in a communication dated September 7<sup>th</sup>, 2011. Before that date I had purchased and secured the domain name *virion.com*.
- **First Use in Commerce.** As explained in the attachment, we were externally sharing (“transporting” at no cost) technology at least as early as February 2015. Please note that *open source software* may be trademarked. See: [https://en.wikipedia.org/wiki/List\\_of\\_trademarked\\_open-source\\_software](https://en.wikipedia.org/wiki/List_of_trademarked_open-source_software)

As mentioned previously, we have no issue with **Virion Therapeutics** *qualified* usage of the term VIRION.



### 4.3 Identification and Classification Require Amendment

The following wording amendments (substitutions /modifications) for classes are offered:

- Class 09: Downloadable computer software for the scientific analysis and management of protein and genetic sequences.

See attached where a SQL database schema was shared (“transported”) externally with a professor on February 24<sup>th</sup>, 2015. This will be used as date of First Use.

- Class 42: Providing use of non-downloadable computer software for the scientific analysis of protein and genetic sequences; data management services for software used for the scientific analysis of protein and genetic sequences; research in the fields of biophysics and chemistry; scientific information consulting in the field of protein sciences and genetics.
- Class 45: *<restricted> Intellectual Property mention will be deleted.*

Class 09 will be *added and fees paid*; mention of intellectual property will be removed. Note that in the *original wording below* consulting services was not intended or stated to be legal services; merely, that in the course of developing scientific algorithms there may be intellectual property implications. Class 42 allows for “consultancy” independent of legal services. Original application wording (to be amended):

*Scientific software tools. Scientific software data management. Biophysics, chemistry research and related intellectual property. Providing research consulting services and software tools/services to other companies and educational institutions.*

### 4.4 Multiple-Class Application Requirements

Amendments and extensions will be made as requester per *action*. Supporting evidence for specimens will be attached as part of the response.