

About the Handling of Scientific Findings Regarding Mobile Phone Research at the Medical University of Vienna

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Summary

Mid-2007 Prof. Alexander Lerchl, biologist at the private Jacobs University in Bremen and member of the German Commission on Radiological Protection (SSK) of the Federal Office for Radiation Protection (BfS), informs the rector of the Medical University of Vienna (MUV), Prof. Wolfgang Schütz, about a serious suspicion: the findings of research carried out at the Division of Occupational Medicine of his university and published in *Mutation Research* in 2005 (Diem et al.) are most likely fraudulent. Shortly thereafter, he makes the same accusation against another study from the same laboratory, which was published in the *International Archives of Occupational and Environmental Health* (IAOEH) at the beginning of 2008 (Schwarz et al.). In spring 2008, the rector mandates the newly appointed Council for Scientific Ethics of MUV, which consists of three persons he trusts, to clarify the expressed suspicion. Without thoroughly examining the allegations, this Council confirms the accusation of data fabrication already after its first meeting on May 16, 2008. As a result, the rector demands of the authors to immediately retract their publications from *Mutation Research* and the *International Archives*. He also demands of the editors - just like Prof. Lerchl did before - to remove the publications from their scientific journals because of a suspected serious scientific fraud. A first press release by the rector and a first report in the German newsmagazine *Der Spiegel* written by the journalist Manfred Dworschak immediately broadcast the allegedly confirmed fraud scandal to the whole world.

However, a few days after the meeting of the Council for Scientific Ethics it is accidentally revealed that the rector-appointed Council chair has been a lawyer employed by the Austrian mobile phone industry. Because of suspicion of partiality, Prof. Hugo Rüdiger, the former director of the Clinical Division of Occupational Medicine and corresponding author of both publications, requests the immediate removal of this Council chair who, according to the Council's statutes, should never have been appointed to this position. He also withdraws the signatures he gave to letters presented to him and addressed to the editors of the two journals, in which he had declared his willingness to retract the publications. The team member accused of data fabrication follows his example. Thus, they both join the decision of the two co-authors Prof. Franz Adlkofer (Munich) and Prof. Niels Kuster (Zurich) who are independent of the MUV rector and who strictly refused from very beginning to withdraw the publications as requested by Prof. Schütz and Prof. Lerchl. Due to the pressure created by the events, the rector sees himself finally forced to replace the industry employee suspected of partiality with a new chair. The successor is a former lawyer in public administration who indeed is independent. In the meetings on June 19, July 24, September 25, and November 13, 2008, under his chair the Council for Scientific Ethics comes to the conclusion that the suspicion of fraud cannot be proven.

In the minutes of the meeting of the Council for Scientific Ethics from July 24, this exoneration of the accused team member is explicitly documented and thoroughly substantiated. A subsequent suggestion by Prof. Adlkofer to clarify the only remaining contradiction in the minutes, that is, the date from which the team member could possibly have known the code required for cracking the blinding of the samples, is ignored by the rector. However, while the news about fraud had been made public as loud as possible, the rebuttal is now kept secret. The minutes are declared classified material by the rector, and even Prof. Adlkofer and Prof. Rüdiger can only have a look on site and under supervision. Prof. Lerchl, though, receives the minutes from an allegedly anonymous source. As if the exonerating statements in the minutes were non-existent, the rector renews his former accusations of fraud in a second press release. And Prof. Lerchl continues his campaign with even greater zeal. His defamatory allegations show more and more a clear tendency to destroy together with the data also the scientific and personal reputation of Prof. Rüdiger and Prof. Adlkofer, the senior authors of the two publications.

A *Spiegel* article - again written by Manfred Dworschak and clearly inspired by Prof. Lerchl - only subjects the researchers from Vienna to more ridicule and mockery. It also clearly shows the dissatisfaction with the exonerating findings by the Council for Scientific Ethics of MUV. Therefore, it does not spare general criticism of the state of affairs at MUV and implies, at least indirectly, that the rector used even dirty tricks. Under these circumstances and perhaps to justify his handling rector Schütz goes before the press a third time. Under the ambitious title *Science and Truth*, he repeats all his accusations of fraud. He also gives himself and his university great credit for how he took exemplary action against fabricated data - of course in the interest of science and truth.

The public only hears that the Council for Scientific Ethics could not find any evidence for the claim of fraud in its final report published in April 2009. It attracts our attention that obviously in the interest of the MUV rector a dubious attempt is made to explain why such accusations could have been made in the first place. With its criticism of the scientific studies, the Council for Scientific Ethics clearly moves beyond its authority towards

ridiculousness. Reason for this odd description is that the two Council members, who were not replaced unlike the first chair, were not neutral in their disposition toward the rector and in their dealings with this case. For the campaign organizers, Prof. Lerchl and Prof. Schütz, the official rebuttal and dismissal of their accusations of fraud has not caused them to rethink their actions. Even the validation of the Vienna findings from at least six international research teams since mid-2009 till up to now, which show that there is no more doubt about the genotoxic effect of mobile phone radiation, could not change their position.

Obviously not satisfied with the results of the investigation by the Council for Scientific Ethics finally another body, the newly established Austrian Agency for Research Integrity (OeAWI), was commissioned to make a final judgment concerning the accusations of fraud. While Prof. Schütz and Prof. Lerchl expected to see the accusations confirmed, the authors of the publications were quite confident that the acquittal by the Council for Scientific Ethics would be followed by an acquittal by the OeAWI. And exactly the latter is also the outcome of the final report published at the end of 2010. Thus it is clear that Prof. Lerchl and Prof. Schütz are slanderers who did not miss a single opportunity over the past three years to destroy the scientific reputation of Prof. Rüdiger's team and to wrongfully violate the personal integrity of its members. In order to at least soften its disastrous judgment in the interest of both slanderers and the institutions they stand for - the Medical University of Vienna and the German Commission on Radiological Protection of the Federal Office for Radiation Protection - this Commission, just like the Council for Scientific Ethics, goes beyond its assignment and authority by harshly, but unjustifiably, criticizing the quality of the publications. That the criticism in parts nearly parallels the wording of the mobile phone industry must have escaped its notice. Therefore, our doubts on the independence also of this Commission are quite justified.

From the outset, the authors of this documentation have put their confidence in their long-standing observation of developments in the history of science which teach: what science has recognized once and validated several times can neither be retracted nor destroyed in the long run — even if powerful lobbying groups in society do not like it so.

Authors' remark: *In the following report sentences in italics with quotation marks are either quoting documents available in English or translations provided by persons involved in the case. Sentences in italics without quotation marks are precise translations from documents available only in German. Translations have been done to the best of our knowledge..*

Introduction

The story told here has its origin in the Clinical Division of Occupational Medicine at the Medical University of Vienna (MUV), where Prof. Hugo W. Rüdiger had been director until October 2007. Within the framework of the Europe-wide REFLEX study, Prof. Rüdiger had observed that ELF as well as RF electromagnetic fields have the potential to be genotoxic. In a follow-up study, his team had shown that this genotoxic potential depends for a large part on the modulation of the carrier frequency. Thus, UMTS radiation (3rd generation of mobile phone technology) was found to be about 10 times more effective in producing DNA strand breaks in isolated human cells compared to GSM radiation (2nd generation). It is well known and well documented that publications with such findings are met with great scepticism and unease by the mobile phone industry and their scientific supporters. In our case the disapproval might have been particularly strong because the obtained findings contradict the results of the German Mobile Telecommunication Research Programme (DMF). Our plan to make them the basis for a new research proposal to be submitted to the EU, that would investigate radiation effects in live humans instead of test tubes, might have indeed provoked resistance.

Prof. Alexander Lerchl from the private Jacobs University Bremen, known for his contacts to the mobile phone industry, was obviously deeply concerned because of this development. Since years adviser and since 2009 even head of the Committee for Non-ionizing Radiation of the German Commission on Radiological Protection (SSK) responsible for the protection of public health, he came to a drastic and dramatic prognosis: if the Vienna research results should turn out to be true, this would be the beginning of the end of mobile communication technologies. Therefore, Prof. Lerchl decided to act. But rather than reviewing the findings and, in case of confirmation, responding with precaution he decided to take action against the publications and the authors. Suspected statistical abnormalities in the description of the findings were to give reason for a suspicion of fraud, and a corresponding campaign was to quickly publicize the hypothesis of fraud.

With Prof. Wolfgang Schütz, the rector of the Medical University of Vienna (MUV), Prof. Lerchl did find the most serious support. The MUV rector was to assume the task to prove that fraud had taken place, and after their suspicion had been confirmed, obviously both together wanted to demand the retraction of the publications.

These are the two main figures of the campaign against the research findings from the Division of Occupational Medicine at MUV. The handling by Prof. Lerchl will be covered in a further documentation in which we will show that it was not only his aim to actually destroy the data, but to also pursue the moral execution of the alleged fraudsters and their helpers. The following documentation takes a close look on the role Prof. Schütz, rector of the MUV, plays. Both professors, of course, emphasize again and again that their actions only intend to help establish truth in science.

1. Studies on genotoxic effects of mobile phone radiation from the laboratory of the Clinical Division of Occupational Medicine are suspected of being fraudulent

Mid-2007 Prof. Wolfgang Schütz, rector of MUV, received a letter in which the allegation of data fabrication in a scientific publication from the Clinical Division of Occupational Medicine of MUV was raised. Author was Prof. Alexander Lerchl from the private Jacobs University Bremen. The allegation referred to "*Non-thermal DNA breakage by mobile phone radiation (1800 MHz) in human fibroblasts and transformed DF5H-R17 rat granulosa cells in vitro*" by E. Diem, C. Schwarz, F. Adlkofer, O. Jahn, and H.W. Rüdiger in the science journal *Mutation Research*¹. The findings described in this publication had been obtained as part of the REFLEX studyⁱ between 2000 and 2004. They document that mobile phone radiation below the currently valid exposure limits has the potential to damage genes in isolated human cells.

The noticeable aggressive description of the case and the well-known close ties to industry of its writer had the effect that Prof. Lerchl's letter to MUV was initially regarded as hardly credible. However, this changed after the retirement of the senior author, Prof. Hugo W. Rüdiger in October 2007. The following spring, the rector of MUV quite unexpectedly mandated his Council for Scientific Ethics to seek clarification of the case. As a first step, the Council requested - based on Prof. Lerchl's criticism - an expert opinion from a statistician of MUV. His statement takes the view that it might possibly be data fraud, but despite some deviations from the norm one cannot necessarily conclude from the statistical analysis that it is data fraud.

In the interim, Prof. Lerchl had also informed the editors of *Mutation Research* about his suspicion of fraud and at the same time requested a retraction of the publication concerned. However, he declined the editors' offer to explain his position in a letter to the editor, because for some unexplained reason he obviously wished to remain anonymous. The editors, too, had the results of the criticized study checked by statisticians. Since the findings corresponded with those in Vienna, they thought that a drastic step like the retraction of a publication because of suspicion would not be justified, and no further steps were taken.

As matters stand, the rector of MUV received a surprising message at the end of April 2008 that further fuelled the fraud suspicion. Prof. Christian Wolf, former Deputy Director and now Acting Director of the Clinical Division of Occupational Medicine, informed the rector that a technical assistant in his laboratory had submitted data without having carried out the required testing. The accused technical assistant - for the past ten years with the Division of Occupational Medicine and considered highly qualified - had indeed not checked the testing results of her colleague as instructed by the new head of the lab but had submitted instead a "pro forma listing", as she liked to refer to it. When asked for an explanation, she immediately confessed the misconduct but for a while did not share the motivation for her actions. Later it became known that she did not want to harm her colleague whose testing results she considered to be erroneous, because a decision about her employment contract was pending. In an e-mail dated September 3, 2008, she explains her

ⁱ REFLEX - Risk evaluation of potential environmental hazards from low energy electromagnetic field exposure using sensitive in vitro methods (QLK4-CT-1999-01574). Supported within the 5th Framework Research Programme of EU

behaviour: *"The only serious mistake I can accuse myself of is: I should have informed Alex [head of the lab] about this situation right from the beginning in April and I should not have tried to give Petra [colleague] a chance to explain herself."*

Instead of carrying out the task as requested by the head of the lab, who had been her colleague for many years, the technical assistant secretly tried to find out whether it was really that easy to crack the code used for the blinding of the exposure chambers as had been suggested by her colleague. This colleague had observed in December 2007 that a technician maintaining the equipment could easily read from the display which of the two chambers had been actively exposed. With her discovery the technical assistant intended to surprise the head of the lab, who depended on her for all research activities. Due to their easy familiarity with each other, she was convinced that afterwards she could rely on his understanding of her behaviour. Never could she have imagined that a trap had been set up for her with far-reaching consequences. And, indeed, the head of the lab behaved totally different than she had expected. Immediately after discovering the fake series of numbers, he - without consulting her - informed the acting director of the Division of Occupational Medicine, Prof. Wolf, about the incident. On the very same day, Prof. Wolf went to see the rector in order to inform him that a scientific misconduct had been detected at his division.

The technical assistant immediately confessed her misconduct but, right from the beginning, also emphasized that this had been a single event. It had nothing to do with previous projects she has been involved in; all data so far collected with her help has been done according to the rules. In opposition to the rector's claims, she explicitly states once more in her e-mail from September 3, 2008: *"Before the Council I also did not confess to any data fabrication regarding the published studies - I admitted the incident from April - and even then I pointed out that I wanted to know whether it would actually be possible to 'crack' the chamber as I had heard about at the beginning of April!"*

That the technical assistant terminated her position with MUV at this time is, by the way, not to be confused with an admission of guilt. The immediate reason for this decision was that she had not been granted a vacation she had requested for family reasons. Apart from that, it was not especially difficult for her to take her leave from the university because the work atmosphere at the laboratory had started to deteriorate since Prof. Rüdiger's retirement.

2. A Council for Scientific Ethics is misused to destroy scientific data

Without any investigation, the Council for Scientific Ethics confirmed the suspected fraud it had been called to investigate. Already at its first meeting on May 16, 2008, the Council concludes that therefore the two publications the technical assistant had contributed to and was listed co-author must be retracted. This hasty decision was not only made without validating the data and without hearing Prof. Rüdiger, the former director of the Division of Occupational Medicine. Despite her firm protestation to the contrary, it is also assumed that *all* data provided by the technical assistant over the years were not based on measurements but had been fabricated. After all, the blinding code for the exposure chambers had supposedly been known to her at least since 2005. No one believed her explanation that she did not need to know the code because certain cellular changes after exposure could be seen so clearly under the microscope that one could tell the difference between exposed or unexposed samples almost at first glance.

Strangely enough, the Council for Scientific Ethics limits its recommendation to retract publications to the two papers that deal with mobile phone radiation: the above-mentioned paper in *Mutation Research* from 2005 and another one from 2008 with the title *"Radiofrequency electromagnetic fields (UMTS 1950 MHz) induce genotoxic effects in vitro in human fibroblasts, but not in lymphocytes"* authored by C. Schwarz, E. Kratochvil, A. Pilger, N. Kuster, F. Adlkofer and H.W. Rüdiger published in the *International Archives of Occupational and Environmental Health*². The remaining six publications, which also show evidence for genotoxic effects through ELF electromagnetic fields, were not of interest to the Council for Scientific Ethics and drop into oblivion for the time being. This is only one of the several pieces of evidence that reveals that the present case is not primarily about scientific but rather economic interests. The intention to eliminate a serious obstacle for the mobile communication industry is clearly shown.

MUV's rector demands the retraction of two publications

Based on the decision of the Council for Scientific Ethics the rector demands of Prof. Rüdiger to sign two "Letters of Retraction" for the studies about genotoxic effects of GSM radiation (*Mutation Research* 2005) and UMTS radiation (*International Archives of Occupational and Environmental Health* 2008). Prof. Rüdiger's objection that there could be no doubt about the accuracy of the published data, which had been confirmed by independent teams, is disregarded by the rector. Further, he ignores that the accusation of not adhering to the blinding protocol - based on the investigation of the Council for Scientific Ethics - does not at all apply to the publication of 2005, because years ago the responding data were obtained at the Free University of Berlin and not at MUV. He explains his decision with the vote of an independent commission to which Prof. Rüdiger has to submit even if he is convinced of the soundness of his data. Reluctantly, Prof. Rüdiger yields to the enormous pressure and signs the two letters prepared by the rector to the editors of both international journals.

Prof. Wolf obtains the technical assistant's consent for the retraction of two publications

Prof. Wolf takes the two letters to persuade the technical assistant to also sign. On May 22, 2008, in a conversation outside of the university he presents to her Prof. Rüdiger's declarations of consent. He makes it clear to her that the retraction of the studies is inevitable, because it is already her ability to recognize exposure by just looking at the samples that suggest the possibility of systematic assessment errors. The technical assistant, though not aware of any such errors but intimidated enough and knowing that her former director signed already, signs too.

The other co-authors of the two publications, Prof. Franz Adlkofer and Prof. Niels Kuster - who do not belong to MUV and who cannot be put under a similar pressure - refused to give their consent to the retraction as they could see no reason to do so, based on the information they had. Without any consideration of this fact, the rector of MUV in a first step informs the editors of both scientific journals that the two publications are most likely based on a major scientific misconduct and that they have to be retracted.

The chair of the Council for Scientific Ethics turns out to be an employee of the mobile phone industry

Two days after the rector's request to retract the publications, a surprising news item surfaced: the chair of the rector-appointed, three-member Council for Scientific Ethics is a lawyer who works for a company of the mobile phone industry. As the previously assumed independence of the Council cannot be reconciled, Prof. Rüdiger and the technical assistant immediately withdraw their signatures from the "Letters of Retraction". Prof. Rüdiger requests of the rector that the Council reassemble under a neutral chair and allow him to make his case. Moreover, he asks that the lab data also be reviewed as this had not been done so far. After all that it should have been obvious that the rector accepts Prof. Rüdiger's suggestion to replace, due to partiality, the chair of the Council for Scientific Ethics and entrusts the Council under a new chair with the further investigation of the accusations. For the time being, the rector does not respond to this suggestion. It is not until the events allow no further refusal that he concedes to arrange at least for a new chair of the Council.

The rector is entitled to appoint the three-member Council for Scientific Ethics according to certain rules. As each appointment is kept secret, he could have indeed assumed that nobody would learn that an employee of the mobile phone industry had been appointed chair. It was only by chance that this information was revealed. This unbelievable event does indeed further support the suspicion that in our case we do not deal with scientific but with economic issues. Obviously, the attack on the results from the Division of Occupational Medicine had been planned well in advance and its implementation was under way with a series of actions. Before becoming active, a new Council for Scientific Ethics had to be appointed which was only possible in the beginning of 2008. With the chair held by a lawyer employed by industry the requirements were met to elegantly eliminate the unwelcome research results with the greatest possibility of success. What somewhere else would have hardly been possible, at MUV^{3,26} the circumstances certainly do not speak against such an assumption, and the subsequent course of events confirms it from always new angles.

3. MUV's rector informs the public about fraud at his university

Yet, in this situation the rector follows a logic that can only be explained with conceitedness and a lack of insight. He trusts in the findings of the Council for Scientific Ethics. Its doubtful findings that seem to have been presented to him only orally - there are supposed to be no minutes of the Council's meeting - are sufficient for him to inform the public about the accusation of fraud.

On May 23, 2008, a press release⁴ is published in which the public is informed about the rector's serious suspicion that the work on genotoxic effects of mobile phone radiation by the former Clinical Division of Occupational Medicine has been fabricated. The rector responded rapidly and decisively to the serious suspicious factors, he called on the authors of his university to retract their publications, and he informed the editors of the scientific journals, in which the publications had been published, *"that the aforementioned publications are based with very high probability on serious scientific misconduct."*

He argues that the statistics of the data of both publications were contested by other research groups in *Letters to the Editor* and that an internal investigation at his university which he prompted also supports the suspicion that the data have not been measured experimentally but fabricated. The suspicion is corroborated substantially by the fact that it was possible to convict a team member involved in both publications of fraud, *"... this author had based her entire working procedure on producing preconceived results."* The team member had immediately confessed to her behaviour and soon thereafter terminated her employment with MUV. The Clinical Division of Occupational Medicine, which had been under the leadership of Prof. Rüdiger until October 2007, would now undergo *"radical reorganisation, with the aim, among others, to ensure that scientific and ethical criteria are complied with in the long term"*.

The concluding statement of the press release states:

"Rector Wolfgang Schütz emphasises that 'regrettably malversation occurs time and again in research practice'. Therefore, he adds, it is necessary to act quickly and with determination. 'This is what the MUV owes to the university's reputation, researchers and lecturers, students and not least the public'. Rector Schütz is confident that 'the authors will ultimately show understanding, the more so because also their scientific reputation is at stake'."

The affected authors object to the rector's press release

The authors Prof. Adlkofer and Prof. Rüdiger declare in their counter statement⁵ that they are not willing to retract the listed studies just because of the MUV rector's order as they are still convinced of the soundness of the described data in these publications. The technical assistant's "data fabrication" did not take place during the work of the criticized studies, but much later and long after Prof. Rüdiger's retirement. It is true that the statistics of the studies have been contested, but this is explained by the fact that the critics are not familiar with the testing procedures. The knowledge about the genotoxic effects of mobile phone fields is without doubt very important for the risk assessment of the technology. To retract the publications without a valid reason therefore does not fit with the authors' view of scientific responsibility to the public.

The German newsmagazine Spiegel spreads the word about the alleged scandal

Spiegel staff writer Manfred Dworschak, who has already repeatedly attracted attention with sensational articles that mock critics of mobile communication technologies to the great delight of the involved industry, now picks up the story from Vienna. In an article with the title *Beim Trickssen ertappt* [Caught at foul play] in *Spiegel* 22/08⁶, he reports that two sensational studies about the risks of mobile phone radiation are obviously the work of a fraudster and after her confession are basically worthless. With a suggestive undertone Dworschak asks his readers: "Was wussten die leitenden Professoren?" [What did the supervising professors know?]

What is remarkable about this article is the disclosure that the technical assistant uncovered as a fraudster supposedly has been suspected of data fabrication for quite some time. Obviously, a victim had to be found with whom the fraud could be proven, and choosing the socially weakest member of the scientific team, a technical assistant, seemed to be the most convenient way.

Nothing is more effective to quickly dispense with scientific data than to claim they are fabricated. And in this case, nothing else would be more suitable to earn the gratefulness of the mobile phone industry. That Dworschak, in this process, adopted the claims of the rector from MUV and Prof. Lerchl unchecked does not seem to have bothered the editors of a newsmagazine, which otherwise

prides itself with being independent and critical. The news about the alleged fraud was picked up by the major daily newspapers in Germany and far beyond. It was reported in the German medical journal *Deutsches Ärzteblatt*⁷ and the word spread internationally through such major scientific journals as *Science*⁸ and the *British Medical Journal*⁹.

Prof. Adlkofer responds to the Spiegel article with a letter to the editor

"The technical assistant Elisabeth K., who supposedly has been caught at foul play, declared in front of witnesses on May 29, 2008 that all experiments she has conducted and evaluated as part of the mobile phone research at the Medical University of Vienna have, without exception, been done under double-blind conditions at all times. In fact, the investigation into the events of Vienna in whose context she has been accused of scientific misconduct has so far not furnished any evidence. The basis for this accusation, after all, only consists of pure suspicions and deliberate misinformation whose causers can currently only be guessed at. It seems to be their ultimate goal to dispose of the research results from the two discredited publications. They will have to come up with something different now because, as things stand at the moment, the authors who are not associated with the Medical University of Vienna do not even think of following the rector's request to retract their publications from the respective scientific journals."

Yet the *Spiegel* does seem to find it neither necessary nor opportune to print this letter to the editor.

4. The replacement of the chair of the Council for Scientific Ethics changes the initial situation

Against the MUV rector's will Prof. Rüdiger is finally successful in having the Council for Scientific Ethics reconvene under a new and neutral chair. In two hearings, on June 19 and July 24, 2008, the Council deals once again with the accusation of data fraud in the publications on genotoxic effects of mobile phone radiation.

A 'talk between colleagues' is believed to help settle things amicably

Ten days prior to the meeting scheduled by the Council for Scientific Ethics for July 24, 2008, Prof. Rüdiger receives an unexpected e-mail from a member of the Council, inviting him to have a talk between colleagues with no minutes being taken so that some problems may already be solved beforehand. This talk was set to take place right before the scheduled meeting in the presence of another Council member. In view of the scantiness of the evidence, which by now must have been obvious, it looked as if a solution was sought to bring this issue to an end without the rector losing his face.

During the talk, it is proposed that Prof. Rüdiger should distance himself from the publication in the *International Archives of Occupational and Environmental Health* from 2008 based on formal reason - because of shortcomings in the blinding procedure that cannot be completely ruled out. In return, the accusation of fraud for *both* publications would officially be dropped and the publication in *Mutation Research* from 2005 would stand. This proposal for compromise is explained with the argument that otherwise the rector would have to maintain his accusations of fraud in another press release even if data fraud could not be definitively proven. This would undoubtedly badly damage the reputation of the authors of the publications and that of MUV as well. Only after a great deal of persuasion, Prof Rüdiger agrees to the proposed compromise. The Council members were able to convince him that if he refused, he could not shoulder the responsibility for either of the possible outcomes: the unhampered continuation of the campaign would damage the reputation of the involved scientists; giving in by the rector - which could hardly be expected - would affect his personal reputation and that of MUV. Thus, Prof. Rüdiger agrees to the compromise with the explicit condition that the accusation of fraud would from now on not be mentioned for *any* of the publications and that the request for retraction of the publication in *Mutation Research* 2005 would never be made again.

The proposal for an "amicable agreement" is accepted

In the minutes of the meeting of the Council for Scientific Ethics from July 24, 2008, the summarizing conclusion states that the claim of fraud can no longer be maintained because there is no evidence for it.¹⁰ The professors Adlkofer and Rüdiger are permitted to read the minutes in the rector's office of MUV, but they are denied a copy as the rector had declared them a classified document. Therefore, it is all the more disconcerting that Prof. Lerchl obtains a copy of the minutes

and seems to have even been allowed to use it freely. After all, thanks to this fact the document is now in our hands - through various avenues and certainly not intended by Prof. Lerchl.

The minutes reveal that the so-called "causa Rüdiger" definitely received a different assessment under the new chair of the Council for Scientific Ethics compared to his predecessor. The change of assessment shows especially in the following points:

- It is thought-provoking that the technical assistant is shown in a completely different light. A member of the former Council for Scientific Ethics had assured Prof. Rüdiger and Prof. Adlkofer that during the hearing the assistant accused of data fabrication had acted as a hard-boiled and tough fraudster, capable of doing anything and absolutely untrustworthy. Under the new Council chair, Prof. Rüdiger is now informed that the technical assistant appears to be a highly intelligent and eloquent young woman who knows how to argue with credibility and who made an excellent impression during the three-hour hearing. She clarified that double blinding was provided, that she has always worked under double-blind conditions, and that the speculations of her knowing the code for the exposure chamber since 2005 are not true. The analysis of the samples had always been performed without knowledge of the code.
- Prof. Michael Kundi (MUV), who had been consulted as an expert on statistical analysis, also found the low variance of the results striking but explained why this does not automatically equal fraud as claimed by Prof. Lerchl. When using a computer-aided analysis for the comet assay, the variance coefficient is up to 10 to 15%, after analyzing a minimum of 50 cells. In contrast, the results of the technical assistant who used visual analysis methods showed only a variance of 1 to 2% per 500 cells. It has been known empirically that results based on visual analysis methods usually show a much lower variance. Based on this knowledge, Prof. Kundi does not consider the results provided by the technical assistant as impossible even though such a low variance comes close to the threshold of the observable.
- The technical assistant also helps clarify the statistical abnormalities that came under attack. As already stated at the hearing before the former Council for Scientific Ethics on May 16, 2008, she reports that for many years she has been able to recognize changes in cells under the microscope which infers their exposure status. Such characteristics as increased occurrence of "comet tails", more irregular cell growth, and difficulty in lifting cells from the petri dish, would assign the sample to the exposed group. No doubt, knowing as to whether a sample has been exposed or not reduces the significance of the coding, which is designed to ensure blinding conditions during the evaluation process. The qualitative differences recognizable under the microscope already at first sight are simply quantified during the subsequent counting of cells, or put it another way: the subjective factor of knowing prematurely as to whether a sample is exposed or not influences the statistical analysis only in such a way that the scattering range and the coefficient of variation decrease. This expertise based on years of experience and exceptional powers of observation should not be held against the technical assistant. That differences can be recognized already at first sight under the microscope should rather be considered a sign of the extent to which mobile phone radiation causes cell damage. If those changes were not there in the first place, they could not be detected.
- The question remains controversial as to when the technical assistant had been able to crack the coding. She herself says that she has known about it since April 2008. Her co-worker, who obtained this knowledge around the end of 2007 during the maintenance of the exposure set-up informed her about it, and she had seen it confirmed in her investigations. Contrary to these statements, the members of the Council for Scientific Ethics are convinced that she has known the coding of the exposure chambers at least since August/September 2005. They had to be, because this assumption played a key role in the search for a compromise intended to save the rector from admitting an irresponsible information policy and to make it possible for Prof. Rüdiger to retract one of the two publications. The assumed date seemed convenient to help bring this issue to a conclusion with an "amicable agreement" as this prospect had already been announced at the beginning of the meeting according to the minutes, and we translate:

Based on the available files, it appears to be not at all that unrealistic that Prof. Rüdiger would agree to an announcement of retracting the publication from 2008. [...] The wording of such an amicable agreement under discussion would, on the one hand, sufficiently accommodate the interest of the Medical University as a research facility, without, on the other hand, permanently - considering that based on the currently available findings of the hearing it cannot be assumed that he had known anything about the decoding of the blinding - and inappropriately damaging Prof. Rüdiger's scientific reputation.

Without an agreement on when the technical assistant had known the coding, the Council for Scientific Ethics now made its *own* assumption about the date to base its proposed compromise on. The minutes of the preliminary discussion conclude with the statement that the rector of the university agreed and that an "amicable agreement" of this nature should be sought, and we translate:

The Council for Scientific Ethics assumes that the statements derived from the investigation findings below, so to speak, form the (tacit) legal basis for the amicable agreement with Prof. Rüdiger. On the supposition that Prof. Rüdiger will meet his agreed-upon obligation of retracting the study from 2008, the case is considered closed and then the listed considerations are no longer regarded as important. [...] The question of scientific misconduct is resolved through the amicable agreement with Prof. Rüdiger. The issues of appropriate methods and consistent research results should, from now on, be purely a matter of scientific discourse.

But the minutes also reveal the restrictions Prof. Rüdiger explicitly made as a condition of giving his agreement to the compromise. He would only agree to the retraction of the study from 2008 because he could not completely rule out problems with the blinding procedure. Also, he would knowingly take this step for himself and does not speak for any of the other authors of the study and would rather expect their opposition.

5. After July 24, 2008, further fraud claims are false statements

The most important result in the minutes of the meeting of the Council for Scientific Ethics from July 24, 2008, however, is that the fraud claims could not be substantiated, and we translate:

The results of the investigation did not provide any evidence that knowing the codes had been used deliberately to manipulate the results of the project or had otherwise been relevant to the research results. Especially in light of Prof. Kundi's re-evaluation, no conclusion can be drawn as to whether the samples used at that time were suitable or not. It could not be shown that the unusually low variance of the results of the evaluations [...] would be completely impossible and a clear sign of data manipulation (statement of Prof. Kundi).

Obviously, the Council only stuck to its claim that the technical assistant had known the codes for much longer than admitted so as to reach a compromise between the rector and Prof. Rüdiger. The reason why the Council did not take any further action to the disadvantage of the technical assistant can obviously be explained by this fact.

The minutes of the meeting are also very important regarding a turning point: anyone who knew about the results of the investigation and deliberately continued to talk about fraud in public after July 24, 2008 would be guilty of making a false statement. Therefore, under normal circumstances it would have been quite clear that after the investigation the findings had to be presented to the public instead of keeping them secret and, thus, promoting further fraud accusations.

Prof. Rüdiger retracts the publication from the International Archives of Occupational and Environmental Health of 2008

As stipulated in the "amicable agreement", Prof. Rüdiger explains in a subsequent letter to the editors of the *International Archives of Occupational and Environmental Health* his consent to retract the publication from 2008 because of the fact that he cannot completely rule out problems with the blinding procedure:

"As the corresponding author I herewith withdraw the publication "Radiofrequency electromagnetic fields (UMTS, 1950 MHz) induce genotoxic effects in vitro in human fibroblasts but not in lymphocytes" by Claudia Schwarz, Elisabeth Kratochvil, Alexander Pilger, Niels Kuster, Franz Adlkofer, Hugo W. Rüdiger. Int Arch Occup Environ Health (2008) 81:755-767. I came to the decision because I cannot guarantee anymore that the blinding of the experiments, which I have considered as a particular strength of this work, was ensured with absolute certainty. This makes it difficult for me, if not impossible, to successfully defend the published data against the criticism that came up after their publication. Nevertheless, I myself am convinced that our results are correct and that they will be confirmed in the near future. All authors of the article have been informed about this decision. I apologize to the readers of IAOEH and to the scientific community for inconveniences."

6. MUV's rector disregards the findings of his Council for Scientific Ethics

The second press release of MUV is a document of a breach of promise

As soon as Prof. Rüdiger agreed to the dubious compromise, the rector ignored the "amicable agreement" as well as the statement of the Council for Scientific Ethics that accusations of fraud could not be proven. On July 29, 2008, another press release of the MUV announces already in the heading that Prof. Rüdiger has retracted his obviously incorrect mobile phone study. Afterwards all previous accusations of fraud made by the rector are fully renewed¹¹:

"Following a hearing before the Council for Scientific Ethics (a body set up at the Medical University of Vienna [MUV] four years ago to assess cases of scientific misconduct), Dr. Hugo Rüdiger, the former Head of the Division of Occupational Medicine and retired as Emeritus Professor in 2007, has withdrawn at least one of two disputed publications, viz. the one that came out in March this year, regarding the alleged DNA damaging effect of mobile phone radiation. First related reports appeared in a MUV release on the 23rd of May this year.

The suspicion expressed at that time was that the data published in the study were manipulated, which could be corroborated additionally now that it was proven definitely that the employee who conducted the experiments had known the blinding code since August 2005. As the changes induced by radiation on the cell nucleus are identified under the microscope, blinding is essential to ensure that none of the investigators knows beforehand which cells have been exposed to radiation and which have not. As a consequence, Prof. Hugo Rüdiger in his capacity as the Head of the team conducting the study and corresponding author of the publication withdrew it at his own initiative.

As has been reported previously, said employee was commissioned to conduct test trials within the framework of an in-house quality control in April this year that were also used for the two publications and then supplied data without having made any related microscopic studies and evaluations beforehand. Following her conviction, she immediately confessed to her behaviour and terminated her employment relationship with the MUVI with immediate effect. Already before that, a statistical expertise commissioned by the Council for Scientific Ethics had expressed doubts regarding the correct collection of data published in the two works.

[...]

Regarding the criticism voiced at several instances with regard to the composition of the Council for Scientific Ethics it must be mentioned that the lawyer who acts as a Council member (a civil servant, but employed with a mobile phone company meanwhile hived off from federal sovereignty) aimed to avoid the impression of partiality and was therefore substituted, especially for this case, by a former member of the Administrative Court."

Thus, the rector sees the "causa Rüdiger" as terminated and adds:

"We have undoubtedly responded quickly and unambiguously, which is what we owe to our university's reputation, to researchers and lecturers, as well as students. Methods not complying with scientific objectives and the ethos of correct scientific practice cannot be tolerated. I'm very calm now that Mr Prof. Rüdiger in the end realised what had to be done."

With his press release from July 29, 2008, the rector not only ignored the compromise that had been negotiated by the Council for Scientific Ethics with Prof. Rüdiger in the rector's own interest, but he reinforced the accusation of data fabrication. With his malicious statement that, in the end, Prof. Rüdiger had shown understanding, he implies that with the retraction of his study he indirectly admitted the misconduct. That the compromise actually was a blackmail to keep the rector from losing his face is not mentioned at all. It is implied that the criticism of the composition of the first Council for Scientific Ethics was unjustified, the replacement of the chair as unnecessary and a concession to Prof. Rüdiger's sensitivities rather than a necessary consequence of a proven partiality. This sheds a strange light on the rector's sense of justice, given that his attitude is not in line with the usual European legal standards.

The rector's press release appears to be platitudes in an attempt to save his reputation. The factual deviations of the press release from the statements in the minutes of the council's meeting are so significant that they virtually force the latter's nondisclosure. Prof. Adlkofer and Prof. Rüdiger, who as affected persons were at least allowed to read it under supervision, had to confirm in writing beforehand that they will never make use of its contents. Surprisingly, Prof. Lerchl is one of the few confidants who have access to the minutes. If there were another piece of evidence required to prove the alliance between Prof. Lerchl and Rector Schütz, here it is. In order to reinforce his words, the rector has even been willing to accept financial losses to the detriment of his university.

The rector obviously returned over 100,000.00 Euro that Prof. Rüdiger had received for his studies from the Austrian Workers' Compensation Board (AUVA). This gesture was doubtlessly meant to demonstrate that when MUV assumes fraud it can do very well without funds used to fabricate data. A similar attempt to deceive was made apparently in regard of the REFLEX project which was funded by the EU Commission within the 5th Framework Programme. Unexpectedly and four years

after the conclusion of the REFLEX project, the EU Commission requested the return of 8,300 Euro from MUV, part of a 187,000 Euro payment for research. Prof. Adlkofer, the coordinator of the REFLEX project, was informed by the EU that the reason for this rather unusual proceeding, which Prof. Lerchl, of course, immediately tried to interpret according to his own agenda, is not associated with a fraud charge.

Prof. Rüdiger and Prof. Adlkofer comment on the rector's breach of promise

How far the press release contradicts the findings of the rector-appointed Council for Scientific Ethics mandated to investigate the facts of the case can be seen from the statement by Prof. Rüdiger from August 2, 2008:

"That the rector ignores the compromise he himself had endorsed in the first place and then confirms with his second press release from July 29, 2008 the validity of his first one from May 23, 2008 speaks for itself. Especially the following points need clarification:

- 1. The mobile phone study is not retracted by me because it is evidently incorrect, but solely for formal reasons.*
- 2. The retraction is the result of an internal agreement (compromise), which had been agreed by the rector and to which he now does not adhere.*
- 3. The ongoing investigation over the past months did not lead to findings that prove the fake of published data. To a written inquiry by the chief editors of the International Archive of Occupational and Environmental Health from June 3, 2008, the rector has not yet replied.*
- 4. It has not been proven that the employee conducting the experiments has known the blinding code of the exposure chamber since August 2005.*
- 5. Because of his reference to suspected data manipulation he had announced on May 23, 2008 (but which since then has not been validated by the Council for Scientific Ethics), the rector keeps the suspicion of fraud at least indirectly alive — which is not justifiable.*
- 6. His mentioning of the publication E Diem, C Schwarz, F Adlkofer, O Jahn, HW Rüdiger (2005) Non-thermal DNA breakage by mobile-phone radiation (1800 MHz) in human fibroblasts and in GFSH R17 rat granulosa cells in vitro. Mutation Research 583, 178-183 is misleading because this paper has not been retracted."*

The following exchange illustrates how little the rector of MUV has actually been interested in any clarification of the facts. On August 27, 2008, in a letter to the rector, Prof. Adlkofer points out a contradiction that had struck him in the minutes. He informs the rector that he could agree to the retraction of the publication only if this contradiction is clarified. Moreover, he demands that the minutes be published:

"Dear Professor Schütz,

Following your invitation, I looked at the minutes of the Council for Scientific Ethics from July 24, 2008 in the presence of Prof. Lechner and a staff member of the rector's office on August 26, 2008. Except for one sentence, which requires further clarification, the circumstances are described as I know them. In my opinion, it is a shame that you do not intend to make this document available to the public because it would be suitable to clear up misunderstandings and to put an end to allegations made against individual people.

The sentence in question reads as follows: Ms. K. is surprised by her notes (from 2005), which she seems to be unable to remember, and explains that they obviously are about successful experiments to understand the code. According to the colleague Mr. Lechner, this sentence is regarded as evidence that Ms. K has known the code since 2005 and that, therefore, an improper influence over the data evaluation cannot be ruled out with certainty. Since nowhere else in the text this assumption seems to be validated, but is firmly objected in several other places, I am of the opinion that it might be possible that Ms. K. has been quoted in an abbreviated or even wrong manner.

I, therefore, ask you to arrange that Ms. K is also given the opportunity to take a look at the minutes. In case she agrees with the interpretation of Mr. Lechner regarding this sentence in the minutes, namely that she knew the code since 2005, this confession would be sufficient for me to also agree to retracting the publication from the IAOEH. However, if she can disprove this interpretation of the sentence with plausible arguments, I cannot see any reason for retracting the publication in question.

Once again, many thanks for being so cooperative and my sincere regards"

But Prof. Adlkofer's letter remains unanswered. Obviously, too much clarification in the "causa Rüdiger" is not desired.

The second press release of MUV is proof of the fact that the rector does not agree with the result of the hearing as conducted by the appointed Council for Scientific Ethics, and especially does he not agree with the minutes, which have been recorded under the supervision of the neutral chair. According to his office, he has the right in such a situation to disregard the minutes and make decisions according to his own discretion - of which he made extensive use in the "causa Rüdiger".

7. A third press release by the rector exposes the Council for Scientific Ethics once and for all

After the meeting of the Council for Scientific Ethics on July 24, 2008, the campaign against the research findings from MUV seemed to finally face failure. Since this had to be prevented at all costs, the journalist Manfred Dworschak takes again action as the rescuing angel. In a *Spiegel* article, whose origin is clearly owed to a connection with Prof. Lerchl, the "true" reasons are revealed how such a fraud scandal could have happened at MUV.

Der Spiegel ridicules Prof. Rüdiger and all those who doubt the safety of mobile phone radiation

Under the headline *Die Favoritin des Professors* [The professor's favourite]¹², Dworschak begins his article with an announcement printed in bold reading like this: *Vienna researchers believe to have shown that mobile phone radiation damages DNA - with apparently fabricated studies. The case is an example of how to handle tough fraudsters: who should uncover fraud cases when science itself is overwhelmed?* The article goes on to tell in broad strokes what Prof. Lerchl will later present to the public in his book about the *Fälscher im Labor und ihre Helfer* [Fraudsters in the lab and their helpers]. The previous allegations are more or less presented as facts. A new element is added: ridicule the enemy and make the campaign initiators heroes. Illustrated with corresponding images, the "old" Prof. Rüdiger is portrayed as some kind of "Professor Unrat" [a book by Heinrich Mann] who is infatuated by a young and beautiful woman, without realizing how she is fooling him. He is juxtaposed with the "proper" Prof. Lerchl who has bravely taken up the fight against the infamous fraudsters in science and succeeded against all opposition. It is noted with displeasure that the investigation of the case at MUV proceeds only very slowly and that the findings of the clear-up are still highly insufficient despite of the undisputed fraud. Therefore, also the responsible ones at MUV, the Council on Ethics in Science and the rector, are not excluded from discriminating allegations.

To obtain again Prof. Lerchl's approval the rector responds to the defamation in Der Spiegel with a third press release, in which he repeats all his claims of fraud

Instead of clarifying the question whether the technical assistant indeed knew the blinding code since 2005 or not, so that he could have reconsidered and, if necessary, corrected his attitude in the case, the rector distributes on September 1, 2008, a third press release - a week after the *Spiegel* article came out - in which he brings his suspicions once more before the public. Probably, he wants to appease Prof. Lerchl who seems to be just as disappointed and annoyed about the outcome of the investigation in Vienna.

The latest press release¹³ with the headline "Science and Truth" starts out as follows:

"MUV is one of the first universities in Austria to establish a Council of Ethics in Science and guidelines for correct conduct of studies and their publication. Thus, it is able to pursue optimal crisis management in accordance with its own criteria when faced with difficult and challenging situations."

Thereafter, the "causa Rüdiger" is discussed:

"In the last few weeks, partly misleading and highly contradictory reports appeared on two studies performed in part at the Medical University of Vienna, published and conducted on the responsibility of the University Professor emeritus Dr. Hugo Rüdiger, previously head of the Clinical Division of Occupational Medicine, on the subject of 'DNA-damaging effects of mobile phone radiation'.

On this issue the Medical University of Vienna takes a basic stand on scientific misconduct and documents the procedure which - based on a justified suspicion concerning clarification of the case and after a final hearing before the Council of Ethics in Science - led to Dr. Hugo Rüdiger withdrawing his study."

After a detailed description of the rules that must be adhered to in the search for truth in science, comments on the studies about mobile phone radiation are made. It is shown in an exemplary way that the investigation adhered to the currently valid rules:

"1.) The Council of Scientific Ethics was entrusted with the task of investigating the charge.

It had several indications of data fabrication - i.e. grave misconduct.

** In two published "Letters to the Editor", grave doubts were expressed about the statistics reported in both publications (in particular, an implausibly low biological dispersion of data)*

** The same conclusion was drawn by a professor of medical statistics commissioned by the Council of Scientific Ethics to write an expert report.*

** The author of the studies who performed the scientific experiments had entirely fabricated the data at experiments performed in the course of quality management in April this year; these experiments were identical to those mentioned in the two publications.*

* This author who is a medical-technical analyst and no scientist admitted this fabrication of data during quality management and resigned her job at MUV immediately afterwards.

* Based on a laboratory log book written by hand, it was found that the author had been aware of the blinding code of the experiments since August 2005. She also did not refute this fact – as it was in her own handwriting. 2.) MUV immediately published all of this evidence in two APA reports.

MUV informed the publishers of both journals in which the work had appeared about all evidence referring to the fabrication of data and recommended retraction of both publications.

3.) MUV asked all authors – particularly the corresponding author – to withdraw the publications on their own. The latter did withdraw one of the publications (however, the reason he cited was that he could not guarantee the blinding).

In the meantime the publisher of the said journal has informed the Rector – in a letter dated 13th August – that he is withdrawing the publication because of the absence of blinding, and that he thanked MUV for contributing to clarification of the matter.

The next task of the Council of Scientific Ethics is to determine all further publications in which this author was involved while using the same experimental design and then advise the publishers in charge to retract these publications as well. This approach of MUV was proof of its rapid, consistent and effective action, which was also appreciated in international circles of experts."

This account which shows the rector's breach of promise but, at the same time, also disguises it, impressively illustrates what this man understands by truth and ethics in science. That none of the arguments the rector refers to in his account can stand up to closer scrutiny has already been revealed in the previous chapters. That his arguments are born out of his imagination in an effort to protect his interests is evident. In view of the "deal" as the "amicable agreement" between Prof. Rüdiger and the rector from July 24, 2008 is referred to in the *Spiegel* article¹², even Prof. Lerchl - whose imagination is certainly on par with the rector's - appears to be baffled. In one of his numerous articles in the internet forum of the IZgMFⁱⁱ, he makes the following statement about this event exactly two years later, on July 24, 2010¹⁴, and we translate:

The second question as to why the rector would still refer to fraud, data fabrication, etc. in three press releases is more difficult to answer. I must admit that I cannot understand at all the contradiction between these explicit press releases and the 'deal'.

Prof. Rüdiger and Prof. Adlkofer also comment on this press release of the rector

Prof. Rüdiger, who at first was left speechless about this line of arguments by his rector, shares his comments a few days after this showdown:

"In other words this is what the rector would like: After fraud could not be substantiated for the two publications, such evidence is now to be abandoned altogether and the publications are to be retracted without any investigation. Let me state very clearly:

- 1. The general withdrawal of scientific publications without any evidence of inaccuracies in these studies is unprecedented internationally.*
- 2. To destroy - for no reason - scientific findings that have been produced with great effort by many, mostly young team members over many years is irresponsible because it challenges the personal integrity and professional future of those affected.*
- 3. It is also irresponsible toward government agencies and others, which have provided substantial funding for these studies for years.*
- 4. It is irresponsible toward society because the submitted findings, which now have been discredited, are of great importance to the health of many people (Report to the chair of the Austrian Society for Occupational Medicine from September 25, 2008)."*

On September 8, 2008, Prof. Adlkofer publishes a press release with the headline *Science and Truth in Mobile Phone Research: Current Developments and Background of a Controversy*¹⁵:

"[...] After having uncovered this scandal, another meeting of the Council was scheduled, this time under a neutral chair. The meeting's minutes that for incomprehensible reasons are regarded as a classified document and are not published - which we as co-authors, however, were allowed to look at - clearly show that the allegations directed toward the affected team do most likely not apply. Remaining uncertainties could easily be clarified if there were a will to do so. But what does the rector do? With no regard for the contents of the minutes, he repeats his allegations in additional public releases. They are even picked up by such an important journal as Science, and the German newsmagazine Der Spiegel publicizes it through a sensational article.

At the homepage of the Medical University of Vienna, the rector of MUV speaks about science and truth in general and about mobile phone research in particular. The way he seems to take it led in our specific case not only to an unjustified destruction of research results from many years of work, but beyond that into the defamation of the participating researchers. A staging like this - even though not new in mobile phone research - is contrary to everything expected from scientific and journalistic integrity. And the disposing of well-documented possible risks humans are threatened by is also contrary to the mandate of a medical university!

ⁱⁱ IZgMF - Informationszentrum gegen Mobilfunk [Information Centre against Mobile Telecommunication]

At the moment, one can only speculate upon the backgrounds of these activities designed to destroy scientific data and, subsequently, to also manipulate public opinion. Of course, one can also try to draw obvious conclusions from the evidence at hand. Clearing the Vienna research findings out of the way would have the benefit of removing at least one important reason that belies the statements of the German Mobile Telecommunication Research Programme and challenges the absolute authority of the currently valid exposure limits. And if, in addition, it would be possible to prevent the Vienna team from continuing its planned research activities within an international framework for the foreseeable future, the telecommunications industry would have hardly any reason to complain."

8. Also in the *Endbericht* [final report] of the Council for Scientific Ethics the team is exonerated from the accusation of data fraud

In April 2009, the Council for Scientific Ethics publishes its final report [only available in German] in which the results gained through all its meetings on June 19, July 24, September 25, and November 13, 2008, are summarized¹⁶. With a delay of over three quarters of a year, the report now also concludes for the public that the asserted allegations could not be proven.

Released from fraud allegation

Translated, the critical paragraph in the final report reads like this:

However, the Council for Scientific Ethics could not produce proof that the discovered knowledge of the concerned laboratory employee on how to break the blinding of the exposure device helped to deliberately falsify or fabricate data. A falsification or fabrication of data was denied several times by the concerned employee, and in this connection she was exonerated by another informant – among others with a remark regarding the proper coding of the slides and, thus, a second blinding.

This statement by the Council for Scientific Ethics finally clears the team from the suspicion of data fraud. This means that allegations by the rector of MUV and by Prof. Lerchl were made wrongfully.

This inevitably raises the question as to whether the rector of MUV is guilty of abusing his position by deliberately ignoring the state of affairs, which has remained unchanged since the meeting of his Council on July 24, 2008. In order to spare the rector and of course also MUV a personal problem in the present situation, the Council quite obviously searches for arguments and wording in its final report that take back the allegation of fraud, but do not remove all doubts regarding the publications of the team. This turns the acquittal based on proven innocence into one based on lack of evidence and thus second-rate. As has already been explained in Prof. Adlkofer's and Prof. Rüdiger's statement, several notes of the Council require clarification because they are quite obviously based on deliberate deception, half-truth, or even falsehood¹⁷.

Technical assistant fabricated data in April 2008

We translate from the final report:

In addition, it was disclosed that a key employee in the laboratory of the former Clinical Division of Occupational Health at the Medical University of Vienna being a first author, respectively a co-author of the two mentioned papers (the latter published in February 2008) had fabricated data when a quality check in the laboratory took place in April 2008. This fact remains undisputed.

Clarification: As has been explained earlier, the technical assistant indeed submitted data in April 2008 for which there were no experiments to back them up, but this happened over a year after the last mobile phone study finished and half a year after Prof. Rüdiger had retired. Thus, the accusation of scientific misconduct is certainly justified, but it has nothing to do with the criticized studies.

Another question begs to be asked then: how could something like this happen with a team member who has been above any doubt for over ten years? From the beginning there was suspicion that a trap had deliberately been set up for the technical assistant disguised as part of a so-called "quality control", designed and prepared by subjects with a joint interest in discrediting inconvenient scientific findings. For the planned action against the scientific findings of Prof. Rüdiger's team, quite obviously a plausible explanation was to be created. The allegation of data fraud seemed to be the most effective tool. At the right time but against the valid rules, the rector appoints a lawyer, employed by a mobile phone company, to be chair of the Council for Scientific Ethics. Obviously, the Council was supposed to be supplied with convincing evidence for the successful and quick closing of the "causa Rüdiger", whose pursuit Prof. Lerchl had demanded already nine months ago and since then again and again.

A first clue to a well-planned course of action is provided with a note in the *Spiegel*⁶ that says that Elisabeth K. had already come under suspicion for quite some time - even a current study she had been involved in attracted attention for some strange data. The rector Schütz, therefore, had the employee covertly monitored for two weeks in April. An e-mail note from the technical assistant to Prof. Adlkofer and Prof. Rüdiger on September 3, 2008, reinforced the suspicion: *"Even so: the rector as well as Prof. Wolf say that these experiments were meant to check on me"*. The ultimate certainty that the technical assistant had, indeed, been set up is furnished by Prof. Lerchl in one of his *Laborjournal* editorials no earlier than 2010. In this text, in which he also documents his close cooperation with the masterminds at MUV¹⁸, it reads like this: *What had happened? According to a person involved, the suspected lab technician, Elisabeth Kratochvil, had been set up. She was supposed to once again assess slides, which she did and she submitted her findings. The hour meter of the microscope's UV lamp, however, showed no move, and, therefore, the assessment had not taken place (to recognize comets stained with ethidium bromide UV is necessary).*

To put their plan into action, the newly appointed head of the laboratory was chosen, as he had worked with the technical assistant for many years and was convinced of her skills just as much as his former superior Prof. Rüdiger. The fraud he then uncovered can certainly not be excused, no matter how understandable this incident in regard of the pursued intention may be from a human perspective. From our perspective, however, the much greater blame is to be placed on those who were determined to sacrifice the team member for their own interests - based on the motto that supposedly only applies to the technical assistant, not to themselves: those who defraud once have always defrauded.

A representative of the mobile phone industry is appointed chair of the Council for Scientific Ethics

We translate from the final report:

Results from the meeting on 16-05-2008 that was chaired by the permanent Chairman of the Council, Dr. iur. Farmer, are not considered in the further proceeding as the retired University Professor Dr. Hugo Rüdiger publicly claimed a conflict of interest in the person of Dr. Farmer.

Clarification: The first chair of the Council for Scientific Ethics was certainly not incidentally an employee of exactly that industry, which had the greatest interest in destroying the data under discussion. That there were obvious reasons for the conflict of interest, which required the removal of the chair, is, however, obscured in the above statement. Also the fact that simply the appointment of a new chair made it possible to reach a totally different level of information is not mentioned at all. The wording rather tries to give the impression that efforts were made to accommodate Prof. Rüdiger's - in this case superfluous - sensibilities.

In view of such euphemistic tendencies, it is no surprise that no one thought of having to remove the entire three-member Council for Scientific Ethics due to a conflict of interest when the first chair was withdrawn. The two other members also had already stated with great clarity that they had no doubts about the fraudulent intentions of the technical assistant. Even though we are pleased to acknowledge the efforts of the new chair to remain neutral, it must be said that the second Council as a whole lacked the personal prerequisite for establishing the truth in an unbiased and neutral manner. If the other two council members had been replaced too, the rector's plan would already have been thwarted before it ever had had a chance to take off.

The date of when the blinding code was known is determined by the Council for Scientific Ethics

We translate from the final report:

The Council did find undisputable proof that in the period the investigations for the publication Schwarz et al. (IAOEH, 2008) were carried out, an employee, who evaluated the samples for this publications all alone, was in the position to make out whether a sample was exposed or sham-exposed by the setting (according to manual) of the display of the coding machine. This fact (knowledge of the blinding code of the exposure device since September 2005) was admitted by the employee in the meeting on 24-07-2008 and the statement was confirmed in writing. [...] Applying its rules on the preliminary judgment of the matter according to the "Guidelines for good scientific practice at the Medical University of Vienna" the Council came to the conclusion that breaking the code by a laboratory employee and co-author (without informing her superior) must be seen as an act of scientific misconduct. It is a serious break of careful duty that this employee, without taking care of appropriate changes in the organizational procedures, did not refrain from collaboration and authorship. Too, it is a serious misconduct of the co-author as especially for the discussed experiments the double blinding with the help of the exposure device developed in Zurich was emphasized as a specific quality feature. With this, the Council states that the data cannot be called scientific sound anymore. This was admitted by the authors

(Schwarz, Diem, Pilger, Rüdiger). That is why the publication in IAOEH was withdrawn by the corresponding author. [...] The chief editors of the journal did not publish the withdrawal of the paper but a Letter of Concern. [...] The investigations of the Council did not come up with a proof that the senior author or other co-authors were informed on the break of the codes.

Clarification: As evidence for its allegation that the blinding codes have been known for years the Council for Scientific Ethics considers the fact that the technical assistant wrote down numbers for some experiments in her handwritten lab book from which the code could have been deduced by a knowledgeable person. The statement that she also confessed to knowing the blinding code at the meeting of the Council for Scientific Ethics on July 24, 2008 and confirmed this in writing is not true. She only admitted and confirmed in writing that the entry in the lab book was her handwriting, however, not knowing how and when the entry was done. She vehemently opposed the Council's conclusion that she would have been able to crack the blinding code since August 2005. Furthermore, the Council forgets to mention that, in addition to the blinding by the equipment, a second blinding in the laboratory was also always carried out. Thus, the claim that the data generated by the team member can no longer be regarded as scientifically reliable is unfounded. It is irrelevant that she should have informed her superior about her knowledge of the blinding code because at the time of the experiments she had not known the code. Consequently, the accusation of an alleged scientific misconduct regarding the authorship and the highlight of a double blinding as a special quality characteristic is also irrelevant.

Here the statements of the Council for Scientific Ethics reveal in particular efforts to exonerate the rector by accusing the technical assistant any way imaginable - regardless of truth, probability, and humanity. In addition to the above observations, this base kind of dealing with the truth and with members of MUV by the Council can be further reinforced by the following facts:

- As has already been described, a plausible explanation was needed for the "amicable agreement" with Prof. Rüdiger that was meant to ensure the retraction of the publication from 2008 and, thus, to declare the rector - at least to some extent - the winner. This explanation was created by an untruthful claim of the Council, namely the technical assistant had already known the blinding code since September 2005 which she allegedly admitted.
- After the meeting of the Council on July 24, 2008, Prof. Adlkofer offered his willingness to the rector to immediately withdraw his opposition to the retraction of the above-mentioned publication if it could actually be proven that the technical assistant had known the blinding code since 2005. He could not agree to the mere claim of such date and he made suggestions on how to bring clarification. Prof. Adlkofer never received a reply to his letter.
- On September 3, 2008, the technical assistant gave her own view of the accusation in an e-mail to Prof. Adlkofer and Prof. Rüdiger:

"[...] I think, the situation is hopeless insofar - there are notes in my handwriting - whichever way they came into being - maybe I am not legally sane anymore because I cannot remember at all having made these notes ... the notes are dated (I hope I remember correctly) 5.12 without a year - which seems quite practical because then one can insert any year [...] At the Council hearing, I said YES that this is my handwriting - but I do not know how these notes came into being - I also see them for the FIRST time - after the hearing A. P. also said to me: one could actually see that you were unable to remember these notes. [...] Prof. Wolf discovered these notes after I had notified him in writing about the error in his report ... voilà, and his report all of a sudden adds up - in time for the hearing. [...] I also did not confess to any data fabrication regarding the published studies - I admitted the incident from April - and even then I pointed out that I wanted to know whether it would actually be possible to 'crack' the chamber as I had heard about at the beginning of April!"

The first author of the publication in IAOEH lacks the credentials for this position in the listed authors

We translate from the final report:

Too, the Council came to the conclusion that the employee mentioned as first author of the publication in IAOEH 2008 did not fulfil the prerequisites of point 1.7.3.4.1 of the Guidelines saying that first in the list of authors is the one who contributed most in work, intellectually or conceptually to the project. There is no evidence that it was the first author who took the 'initial initiative to start' the publication in IAOEH 2008 'with a substantial part in the conception and study design' (point 1.7.3.2.1 of the Guidelines). She neither did take part in the evaluation process, nor did she work on the necessary revision of the publication in 2006, nor did she read the final version of the manuscript finally submitted by the corresponding author for publication. This means that at least three prerequisites mentioned in points 1.7.3.2.1 to 1.7.3.2.5 of the Guidelines for naming an author, let alone a first author, in the meaning of point 1.7.3.2 of the Guidelines are not fulfilled. This fact had to be judged as a 'violation of the defined rules of authorship' inherent in the publication and, thus, a scientific misconduct in the sense of point 2.1.1 of the Guidelines.

Clarification: This claim that the person listed as first author in the publication under discussion would not meet the required qualifications is also a strange allegation. Already in 2007 this team member had been assigned by Prof. Rüdiger to present, as a representative of the team, the findings she had been involved with generating for discussion at an international conference in Switzerland. Based on this presentation, she later wrote the first version of the publication on her own which Prof. Rüdiger then submitted to the editors of the scientific journal IAOEH, without making any substantial changes. The statistical analysis was carried out under her supervision in cooperation with the current head of the laboratory who, incidentally, did not voice any concerns at that time that something may not be quite right with the numbers. Only after the peer-reviewed manuscript had been returned for revision by the editors, Prof. Rüdiger made changes to the text in coordination with the co-authors. The first author received a copy of the manuscript for a final check. When she distanced herself from the study at the hearing before the Council for Scientific Ethics, it was a surprise that can only be explained by her great fear brought by the claim of the Council that there was no more doubt that a colleague had fabricated data. After all, young scientists are quite aware that a scientific career can be finished before it has really taken off if there is involvement in a fraud case.

The accusation of the Council that the team member did not have the right to be listed as first author cannot be sustained based on these circumstances, and the statement that this would also be regarded as a scientific misconduct is far-fetched. The ludicrousness of the argument was either not recognized or accepted as it did serve their pursued purpose.

The publication in Mutation Research in 2005 is exonerated from fraud allegation, but presented as scientifically doubtful

We translate from the final report:

Concerning the publication Diem et al. (Mutation Research, 2005) for which also charges of data fabrication were voiced, the Council could not find any proof, neither for breaking the code nor for falsification or fabrication of data. However, in the frame of the investigations it was noted that this publication is based on limited data that were gathered in two and a half weeks (in Berlin by the Viennese laboratory employee mentioned above). In particular, only one (!) exposure experiment with two samples was carried out for each time point, but still statistical calculation was done and published (standard deviation mentioned). This is a not-justified scientific procedure and reduces the validity of the publication.

In addition to this, here is a translated excerpt from the minutes from July 24, 2008:

The findings of the investigation do not allow to conclude that Ms. E. D. had already been successful in cracking the code of the exposure chambers in her experiments performed in Berlin in 2003 (basis for the publication on 2005) nor that they had been known to her. While acknowledging all the evidence, it rather must be assumed that she concerned herself with the cracking of the coding for the first time (and successfully) in September 2005. Further investigations that would look into the circumstances of the experiments in Berlin in 2003 are limited by their time and space constraints and seem hopeless.

Clarification: In an e-mail from September 3, 2008, the technical assistant writes to Prof. Adlkofer and Prof. Rüdiger: "As to the paper from Berlin: at that time (data were generated prior to 2005), I worked with an RF chamber - I was not even allowed to go to the washroom by myself, let alone doing anything on my own with this chamber, certainly not cracking its code."

By injecting its doubts about the validity of this study in the final report, the Council for Scientific Ethics again shows its intention to undermine the credibility of the research findings by the team of Prof. Rüdiger as a whole. Thus, the Council not only overstepped its investigation mandate, but it also entered an area where it lacked the professional competence to judge. That the peer reviewers of the scientific journal *Mutation Research* as established experts had agreed to the publication did not seem to be of interest to the Council.

Earlier studies

We translate from the final report:

The investigations ordered by the rector covering earlier publications of the authors concerned did not produce any proof of scientific misconduct.

Clarification: In this context it is only important to note that the rector as well as Prof. Lerchl initially forgot, in addition to the retraction of the two publications, to also demand the retraction of those six studies in which the same authors had investigated the biological effects of ELF radiation. To call these findings into question, in which the mobile phone industry had very little interest, did obviously not belong to their mandate. Only when they realized months later that neglecting the effects of this kind of radiation could draw inconvenient inquiries, did they also request the

examination of these publications. In this case the activity level, however, did not even begin to compare with the one regarding the mobile phone data.

The final report is a document of contradiction. It states that no evidence of data fraud has been found, but is of the opinion that this is not relevant because in any case the published results have been created in a dubious way.

9. The acquittal from the accusation of data fraud is confirmed by the Austrian Agency for Research Integrity

At some point, Prof. Lerchl and Prof. Schütz did realize that all their attempts had failed to convince the editors of the two scientific journals of the necessity to retract the publications of the Vienna team from the scientific literature. But all the sudden they had, encouraged by them or not, a final opportunity to still reach this goal.

Just then the Austrian Agency for Research Integrity (OeAWI) was founded, an agency whose members include 12 Austrian universities, the Austrian Academy of Sciences, the Vienna Science and Technology Fund (WWTF), the Institute of Science and Technology Austria (IST), and the Austrian Science Fund (FWF). Most probably at the request of Prof. Schütz and certainly of Prof. Lerchl this agency was commissioned to address that which the Council for Scientific Ethics of MUV had refused to do: To finally withdraw the publications of the Vienna team suspected of being faked from circulation. Considering the dominant role of the MUV and its rector in the medical sciences in Austria, the close ties between all research facilities in Austria, and the Austrian style of solving problems by negotiating agreements between friends in advance, they could indeed assume that their unsuccessful efforts over the past three years to destroy the data would finally be successful.

Shortly before the OeAWI made its decision, the Austrian *Forum Mobilkommunikation* (FMK) - whose task it is to impart to the public, but especially to the decision makers in the country the correct understanding of science in mobile phone research the way the mobile communication industry sees it - again presented Prof. Alexander Lerchl's long list of 'suspicious facts, indications, and evidence of data manipulation', which as he is convinced give evidence of the scientific misconduct of Prof. Hugo W. Rüdiger's team. Either as a threat or a warning, the release stated¹⁹ that it remains to be seen whether the agency would be able to fulfil the assignment with which it was entrusted. The REFLEX study would be a first test. On November 26, 2010, after nearly a year of investigation, the statement of the Commission for Research Integrity, set up by the Austrian Agency for Research Integrity, was released²⁰. The report starts with the remark that the result of the hearing of the Commission is publicized for once only because the topic of the present case is already widely known in public. As quite common in Austria, the results of the investigation might be best described as an understandable, but factually indefensible effort to try to please all parties without meeting the expectations of any.

In its statement (on available in German) on "Fall 2009/01" - the first case to be decided since its inception - the Commission states that the fraud allegations concerning the publications of Diem et al. 2005 (part of the REFLEX study) and Schwarz et al. 2008 (a follow-up study) could not be verified. Therefore, it must follow that Prof. Lerchl and Prof. Schütz are slanderers who took every opportunity over the past three years to destroy the scientific reputation of Prof. Rüdiger's team and to wrongfully violate the personal integrity of its members. At an event, co-organized by the FMK in Vienna in 2009, Prof. Emilio Bossi, a Swiss expert for ethics in science, declared that the character of those who slander someone is not so different from those who commit fraud and that those slanderers should receive similar punishment. The Commission obviously tried to avoid this because, in their view, there were probably overriding considerations.

While the Commission on one hand rejects the accusations of Prof. Lerchl and Prof. Schütz, it does state on the other hand that for all publications of Prof. Rüdiger's team, even those dealing not with electromagnetic fields, the documentation of the original data and their presentation raises doubts about the reliability of the results. The scientific community, therefore, has not yet come to a final conclusion on genotoxic effects of electromagnetic fields, and further carefully designed and conducted scientific studies are necessary to clarify any possible associations between electromagnetic radiation and cell damage including their causes. With this statement, which could

have been dictated by the FMK, the Commission may well have succeeded in pacifying the mobile phone industry and ensuring also its own survival.

In this context it is absolutely essential to address some of the most serious shortcomings of the Commission's statement, which are at odds with the actual circumstances or events:

- On two publications with data referred to as contradictory and incomprehensible by Prof. Lerchl and published prior to the time Prof. Rüdiger started his studies on possible biological effects of electromagnetic fields the Commission states, and we translate: *On the comments concerning the publications of Diem et al. 1999 and Ivancsits et al. 2002 Prof. Rüdiger responded to in writing and in person and could partly clarify the raised issues. However, it remained unclear how the published results were generated from the available original data. Based on this, the Commission could neither confirm nor deny the fraud allegation made by Mr. Lerchl. Prof. Rüdiger explained in writing to the Commission: "This turn of events is completely unclear to me. The complete set of the experiments' documentation of the publications was available to the Commission. Therefore, I am unable to comprehend what this turn of events is supposed to mean."*
- In another paragraph, the Commission repeats criticism about all publications of Prof. Rüdiger's team, including those that do not deal with the effects of electromagnetic fields, and we translate: *In all publications, the documentation of the original data and their presentation do not follow the guidelines of good scientific practice and, thus, lack the care necessary to be able to follow the published results.* Prof. Rüdiger also responded to the Commission concerning this issue: *"Again, I am unable to follow your judgment here, especially since there is no explanation provided. After all, this is about publications in peer-reviewed journals."* Yet, far more important is the fact that the original documents of the mobile phone studies have not been examined at all by the Commission. Prof. Rüdiger as the head of the team did not provide them as he had never been asked to do so.
- The following request of the Commission, which could have been also adopted from the mobile phone industry, seems particularly strange, and we translate: *Considering the importance of the results for the widespread use of mobile phone technologies, it would have been appropriate to have the experiments confirmed by an independent team prior to their publication.* In his reply to the Commission, Prof. Rüdiger objected as a part of the studies *"had been conducted within the EU-supported REFLEX project. The REFLEX group included twelve teams from seven European countries, and the results were presented in detail and extensively discussed at conferences every six months. Back then, it was said that our results should certainly be published. This was also a request of the financial sponsor, in this case the EU."* Based on the fact that the genotoxic effect of mobile phone radiation had been observed in hundreds of experiments and that, in addition to the MUV's REFLEX team, another REFLEX team at the Charité in Berlin had also noted genotoxic effects, it can be assumed that doubts about the validity of the study results are not justified. Because of the importance of the findings for protecting the public from possible risks of mobile phone radiation but also for the further development of mobile phone technologies, scientists and medical doctors do not have a choice. They must follow their conscience and act accordingly. The Commission's criticism is out of place.
- The following statement of the Commission is also completely incomprehensible, and we translate: *Indeed, the experiments of Diem et al. 2005 were repeated by the team around Prof. Speit in 2006, that is, after the data had been published. In doing so, the findings of the Vienna team could not be reproduced. The fact that Speit et al. were not able to reproduce the findings does not mean that the fraud allegation would have been confirmed.* The VERUM Foundation-financed experiment at Prof. Speit's place was a failure that can be traced to fact that the carrier frequency of 1800 MHz was unintentionally used instead of the modulated form of radiation; however, this was only discovered afterwards. Prof. Rüdiger asked the Commission why it does not once mention the numerous publications that do confirm his findings. He also pointed out that his publications about genotoxic effects of mobile phone radiation have been published in peer-reviewed scientific journals and that, despite the heavy pressure by Prof. Lerchl and Prof. Schütz, they have not been withdrawn from the scientific literature because the editors did not consider the scientific criticism to be credible. The Commission did not consider it necessary to respond. It bluntly states: That which we have written remains written.

The Commission's line of argument to consciously disregard the current body of research is an attempt to justify and excuse the behaviour of Prof. Lerchl and Prof. Schütz. Since a data manipulation could not be proven, they both would have faced rather uncomfortable consequences if not for the Commission's consideration of their interests. They would not have lasted in their positions. If they had been found irresponsible, the institutions they represent, namely the German Commission on Radiological Protection at the Federal Office for Radiation Protection as well as the Medical University of Vienna, would have faced enormous problems. The Commission obviously did not wish to take this responsibility and decided on the matter as quite common in Austria with a bad compromise.

Consequently, the Commission took the path of least resistance. It attempted to surmount the insurmountable. It acquitted the team of the charge of data manipulation, but at the same time the team had to accept that in the public opinion the significance of their study results was nearly ruined. The mobile phone industry had to accept that the fabricated story, of which they had grown so fond, had dissolved into thin air. Industry was compensated with the statement that further research is needed because up to now the results offer no reliable conclusions. The Commission's obvious struggle for a credible compromise raises considerable doubts about its independence its ethical competence. There is much to suggest that the mobile phone industry and the friends in science wielded their mighty pen. Perhaps is this also a reason why one of the commission's members declared to be biased and declined the assistance in investigating the case.

Conclusion

The events at MUV reported here are based on the conflict between economic and scientific interests, which has been part and parcel of industrialization of the world from its beginning. As can be seen throughout the history of science, this conflict manifests itself very clearly when certain products or their applications that promise great financial profits are presumed to be associated with risks to human health and the environment. Research findings with possible consequences for the economy, especially when they cannot be reconciled with the currently established paradigm, may have a particularly difficult time.

At the moment, mobile phone research is a striking case in point. Industry and politics tend to take the view in regard of possible health risks of RF radiation that wireless technologies are safe for humans. Even though the current state of knowledge no longer allows for such an assumption, this view is defended by all means. The industry relentlessly employs its huge profits from this technology to push through their interests - with specific public relations and by influencing political decisions. This is only possible with the help of a notable number of scientists who - for whatever reasons - are willing to support this view. An impressive example of how differently findings in epidemiological studies can be interpreted, depending on the view of the scientist, is given by the only recently published INTERPHONEⁱⁱⁱ study²¹. While such scientists as Prof. Lerchl use the results for an all clear signal and once in a while even suggest positive effects²², independent scientists tend more to the opinion that mobile communication radiation helps to develop e.g. brain tumours and perhaps also neurodegenerative diseases.

Downplaying interpretation of available epidemiological data is only possible when the findings of basic research as from the REFLEX project or its follow-up study at MUV are completely disregarded. The DNA-damaging effects of mobile phone radiation as shown in isolated human cells provide strong support for the assumption that the epidemiologically demonstrated relationship between long-term mobile phone use and the development of brain tumours is causal. The knowledge about this relationship is most likely the true reason for the campaign against the research findings from MUV aimed at damaging the reputation and honesty of the Vienna research group. The only goal of the campaign was and continues to be to remove unpleasant publications from the scientific literature by all means. The findings reported in the publications are not in the interest of the mobile phone industry because they are a wake-up call to politicians to provide precautionary protection for the public, long before they are forced to do so most probably in the future based on the findings of epidemiological studies. The probability of such a development grows from year to year. Precautionary measures, however, not only threaten the high profits of the industry, but also require efforts to consider new and safer technical solutions.

What the authors of the campaign did overlook with their short-sighted decision is the fact that by now we do not depend anymore on the research findings from Vienna regarding the assessment of causal links. Within the

ⁱⁱⁱ INTERPHONE: International case control studies of cancer in relation to mobile telephone use (QLK4-CT-1999-01563). Supported within the 5th Research Framework Programme of the EU.

past years, several studies have been published that prove beyond doubt the DNA-damaging potential of mobile phone radiation:

- Franzellitti et al.²³ published in *Mutation Research* in October 2009 a study in which they prove that the rate of DNA strand breakage increases significantly — similar to the observations in Vienna — in isolated human trophoblasts after GSM exposure for 16 or 24 hours, respectively. No increase in the rate of DNA strand breakage can be observed when the cells are exposed exclusively to the carrier frequency of the mobile phone radiation.
- Only a few days later, Xu et al.²⁴ followed with a publication in *Brain Research* in which they demonstrate the genotoxic potential of mobile phone radiation with a different method. They report that the rate of DNA adducts caused by oxygen radicals in the mitochondria of cultured neurons (nerve cells) increases significantly after a 24-hour exposure to GSM radiation.
- In another paper published at the beginning of 2010 in *Neuroscience Letters*, Campisi et al.²⁵ find an increase in oxygen radicals and DNA strand breakage in primary glia cell cultures of rats after the exposure to an RF electromagnetic field (900 MHz, modulation similar to GSM). In order to demonstrate the effect, an exposure of only 20 minutes at a field strength of 10 V/m (exposure limit: 41 V/m) is sufficient. Again, the genotoxic effect remains absent when the exposure only consists of the unmodulated carrier frequency.
- In addition, a study published by Kesari et al.²⁶ in the *International Journal of Radiation Biology* at the beginning of April in 2010 shows that RF electromagnetic fields (2450 MHz) also develop their genotoxic effect under in vivo conditions. In rat brain cells exposed for over 35 days at two hours each day with a whole-body SAR of approximately 0.11 W/kg, a highly significant increase in the rate of DNA strand breakage was observed.
- Guler et al.²⁷ provide findings in their also in 2010 published study with which they show that white New Zealand rabbits also respond to the exposure (15 minutes per day for 7 days) of 1800-MHz signals similar to GSM radiation (electrical field strength: 14 V/m, exposure limit: 58 V/m) with oxidative lipid and DNA damage. Once again, evidence was provided that modulated RF electromagnetic fields well below currently valid exposure limits can cause genotoxic changes in the brain of experimental animals whose whole body was exposed. Why this should be different in humans, there is no explanation.
- For now the latest findings that indicate DNA-damaging effects of GSM-1800-MHz signals were presented by Xu et al.²⁸ at the International Meeting of the Bioelectromagnetics Society (BEMS) in Seoul, Korea, in June 2010. In two out of four different cell lines, in lung cells of Chinese hamsters and in human fibroblasts, a significant increase in DNA double-strand breaks is observed—just like in Vienna—after a 24-hour intermittent radiation exposure (5 minutes on, 10 minutes off) at an average of 3 W/kg compared to the controls. In human amnion cells only a trend toward an increase is found, and human lens cells show no response. Thus these results suggest a cell-specific effect of GSM radiation.

It remains to be seen how these new findings are dealt with, as they actually reduce the campaign against the publications of Vienna team to an absurdity. Truth, of which the initiators of the campaign like to talk in order to hide their true interests, cannot be suppressed in science in the long term.

In the context of the documented events at MUV, we also ponder another question: What motivated two scientists in outstanding social positions, Prof. Alexander Lerchl as chairing member of the Commission on Radiological Protection in Germany and Prof. Wolfgang Schütz as rector of the Medical University of Vienna, to invest a great deal of time and effort to portray scientific data as faked in order to force their retraction from the scientific literature? Why did they attempt to do this through means that otherwise are completely uncommon in the dealing with research findings, namely untruthful statements, unfair practices of different types, and defamation of their colleagues? The discrepancy between the weakness of their arguments and the ruthlessness with which they pursued their cause leads to the conclusion that most probably the reasons for their doings must lie outside science.

In this documentation we limit ourselves to the scheming of the rector of MUV, Prof. Wolfgang Schütz. We will dedicate a separate documentation to the activities of Prof. Lerchl, who evidently failed miserably as a participant of DMF (<http://www.pandora.stiftung.eu>). Prof. Schütz shoulders the responsibility for the following absolutely incredible events at MUV:

- For the trap disguised as a quality control, which was set up for the technical assistant months after the criticized studies had been finished;
- For the claim that the fabrication of the research results by the provoked scientific misconduct of the technical assistant can be taken for sure;
- For the member selection of the first Council for Scientific Ethics contrary to the rules where the chair had to be replaced due to partiality;
- For the lack of neutrality of the subsequent Council for Scientific Ethics, which kept two of the former, demonstrably biased members on the Council and who continued to represent his interests;
- For three press releases discrimination Prof. Hugo Rüdiger's team, of which the last two do not at all correspond with the investigation findings of the Council for Scientific Ethics;

- For the request to the editors of two scientific journals to retract publications, which he had wrongfully accused of being fabricated, from the literature;
- For handing over the classified minutes of the meeting of the Council for Scientific Ethics from July 24, 2008 to Prof. Lerchl, which the authors of the publications had been denied;
- For the damage to MUV caused by the publicity-grabbing, but unjustified refund over EUR 100,000.00 to the sponsoring organization AUVA, supporting the research projects of Prof. Rüdiger's team;
- For the loss of reputation of the scientists involved with the studies inside and outside of MUV, but also MUV itself, where he is rector;
- For preventing the information of the public about possible health effects of mobile phone radiation, where warnings need to be issued according to our current knowledge – this also especially in view of the findings obtained at his university.

Two years ago, a group of physicians and professors, who call themselves *Freunde der MUW* [Friends of MUV] suspected the currently acting "regime" around Prof. Schütz of corruption and abuse of power and filed charges with the Vienna District Attorney's Office²⁹. The events documented by us did not play any role but do fit the picture the "Freunde" have gained about the leadership of their academic institution. A report in the renowned scientific journal *Nature*³⁰ about an actual fraud scandal at the University of Innsbruck concludes with the statement: "*Austria is a small country, and networks between power-brokers are small and tight. But something, it seems, is rotten in the state of Austria, and needs to be faced and dealt with openly.*" Based on their findings, the authors of the documentation presented here cannot agree more with this devastating assessment.

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