Irene's Nightmares

ERNDIM Website Quantitative Schemes

Cas Weykamp, Irene de Graaf SKML, Queen Beatrix Hospital Winterswijk, the Netherlands Manchester, 22 November 2017



SKML Crew Serving ERNDIM



SKML Crew Serving ERNDIM

Irene responsible Websites

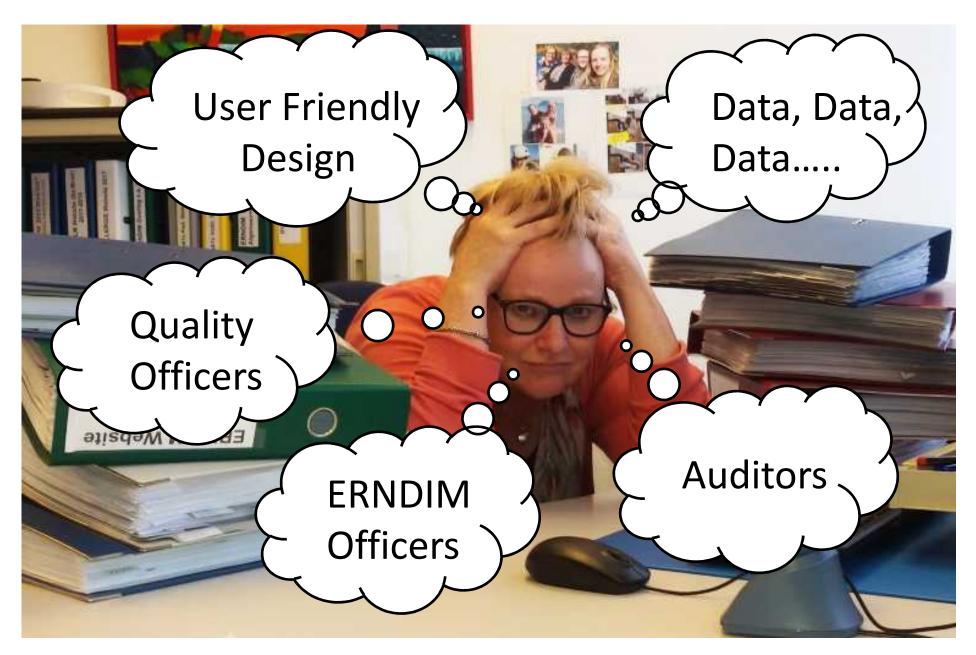


SKML Crew Serving ERNDIM

Nightmares?

Irene responsible Websites

ERNDIM Website



ERNDIM Website



Data Management

Scheme	Analytes	Participants	Samples	Nr. Reports
Amino Acids	25	266	8	53.000
Special Assays U	14	175	8	20.000
Special Assays S	18	242	8	35.000
Lysosomal Enzym	10	78	8	6.000
Organic Acids	19	122	8	19.000
Purines/PyrP.	13	51	8	5.000
Cystine WBC	3	38	8	1.000
Neurotransm	6	26	8	1.000
Pterines	4	22	8	1.000
Acylcarnitines	20	80	8	13.000
Dried Blood Spots	?	?	?	?
Total	132	1100	80	160.000

Archive from Year 2000 = 2.6 million reports

ERNDIM Website



User Friendly Design

Different Users

=

Different Requirements

Technician: (Condensed) Details

Lab Manager: Summary

Director: Condensed Conclusion

Design should serve all

Data

- N Schemes
- N Samples/year
- N Analytes

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IΔm	Ina	Acid	7 C
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Analyte	Sample Nr.								
7 triary ce	1	2	3	••••	8				
Alanine									
Asparagine									
Glutamine									
Valine									

Details

You consider: - 1 Scheme

- 1 Sample

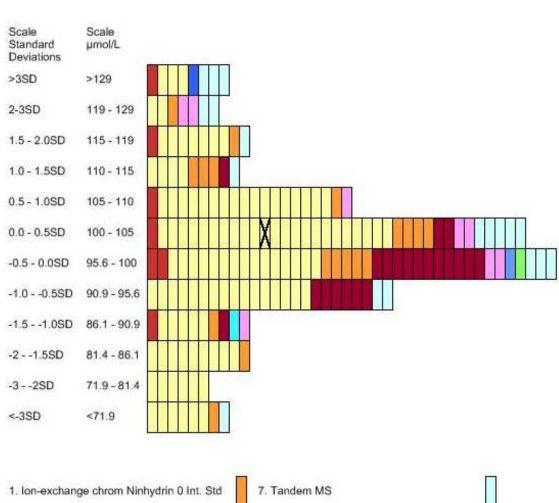
- 1 Analyte

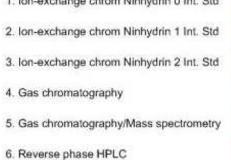
"Analyte in Detail Report"

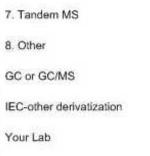
Analyte		Sar	nple N	r.	
Analyte	1	2	3	••••	8
Alanine					
Asparagine					
Glutamine					
Valine					

Analyte in Detail Report

Sample:	2016.08
Analyte:	2-Aminobutyric acid
Deadline:	25/11/2016
Unit:	μmol/L
Your Method:	2. Ion-exchange chro
Your Result:	103
Method results	
n:	113
Mean:	101
Median:	101
SD:	8.59
All Labs results	
n:	189
Mean:	100
Median:	100
SD:	9.49







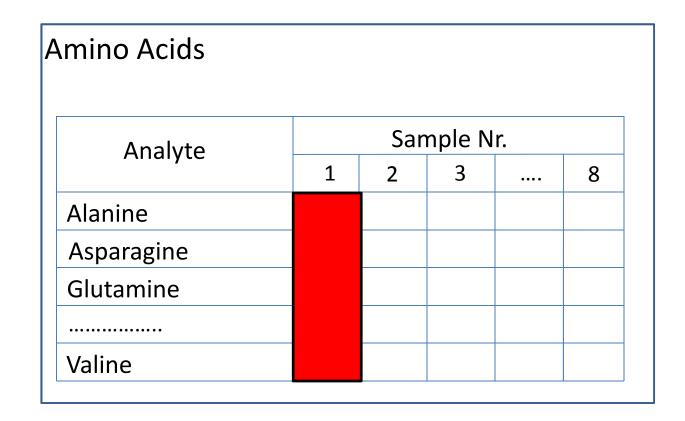
Condensed Details

You consider: - 1 Scheme

- 1 Sample

- All analytes

"Cycle Review Report"



Cycle Review Report

Analyte	Your Lab	Med All Labs	n	ZScore	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
2-Aminobutyric acid	103	100	189	0.3			2		4	1	3 5	6	7	
Alanine	896	906	243	0.2			4				167	2 3 5		
Alloisoleucine	77.0	78.0	172	0.1	7		3	2 4	1			6	5	
<u>Arginine</u>	615	616	240	0			2 4	7			3 5 6	1		
Asparagine	107	103	222	0.2							6	234	1	7
Aspartic Acid	42.0	47.0	234	0.8		124	6	3	7					
Citrulline	1714	1896	238	1.2		4	12		3	6	5 7			
Cystine	8.00	7.00	212	0.3			27	5 6				13	4	
Glutamic acid	147	128	241	1.2						234	16	7	5	
Glutamine	866	848	232	0.3			12	47	6		3.5			

	<10%	4%
Score	10% - 90%	96%
	>90%	0%
	<10%	3%
Cumulative Score	10% - 90%	95%

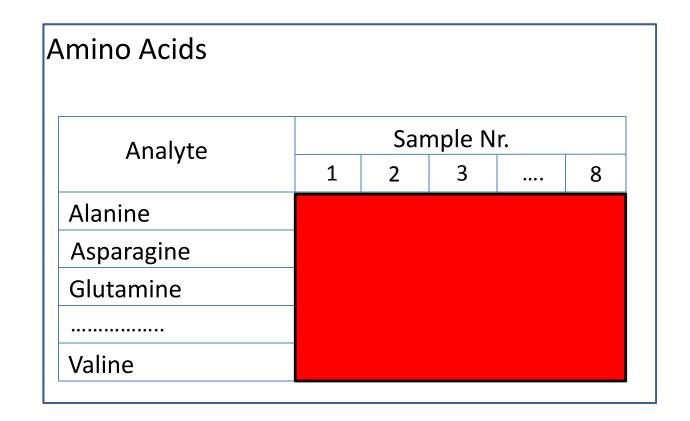
Summary Details

You consider: - 1 Scheme

- All Sample

- All analyte

"Annual Report"

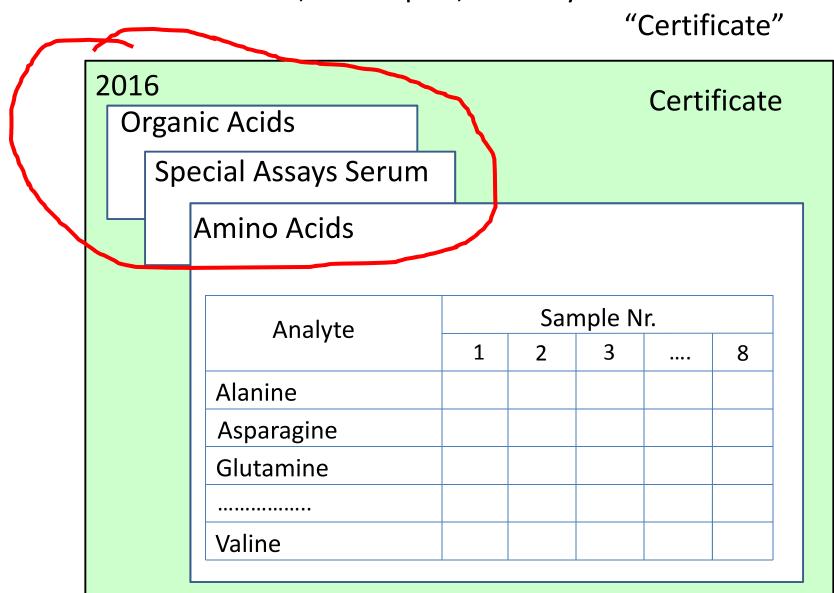


Annual Report

Analyte	Accuracy (mean)		Precision (CV% duplicates)		Linearity (r)		Recovery (%added analyte)		Data all labs	
	Your Lab	All labs	Your Lab	All labs	Your Lab	All labs	Your Lab	All labs	n	Interlab cv
2-Aminobutyric acid	47.6	45.8	4.6%	7.1%	0.997	0.997	100%	101%	215	13.7%
Alanine	355	357	3.6%	5.2%	0.999	0.998	91%	95%	270	9.04%
Alloisoleucine	72,4	72.5	6.5%	7.0%	0.998	0.996	98%	95%	192	11.7%
Arginine	246	249	4.6%	4.4%	0.999	0.999	93%	96%	267	8.65%
Asparagine	102	89.0	12.3%	10.2%	0.991	0.991	105%	97%	249	19.8%
Aspartic Acid	43.0	49.3	5.1%	9.0%	0.996	0.993	58%	67%	260	19.3%
Citrulline	666	719	3.3%	6.2%	0.998	0.998	84%	95%	264	13.4%
Cystine	38.4	38.3	8.1%	9.0%	0.994	0.990	55%	59%	240	13.7%
Glutamic acid	129	120	6.8%	10.2%	0.996	0.987	116%	111%	269	15.3%
Glutamine	603	614	4.6%	7.1%	0.996	0.994	91%	95%	260	10.8%
Glycine	348	350	3.4%	4.9%	0.999	0.998	95%	97%	269	8.81%
Histidine	179	178	11.9%	6.6%	0.995	0.998	98%	91%	264	11.2%
Homocitrulline	62.5	71.2	18.4%	6.8%	0.969	0.994	77%	87%	117	15.5%
Hydroxyproline	51.0	47.6	13.8%	10.9%	0.985	0.986	120%	94%	230	13.6%
Isoleugine	143	141	6.9%	5.6%	0.999	0.999	97%	94%	269	11.7%

Overview

You consider: All Schemes, all samples, all analytes





Certificate of Participation and Performance for 2015

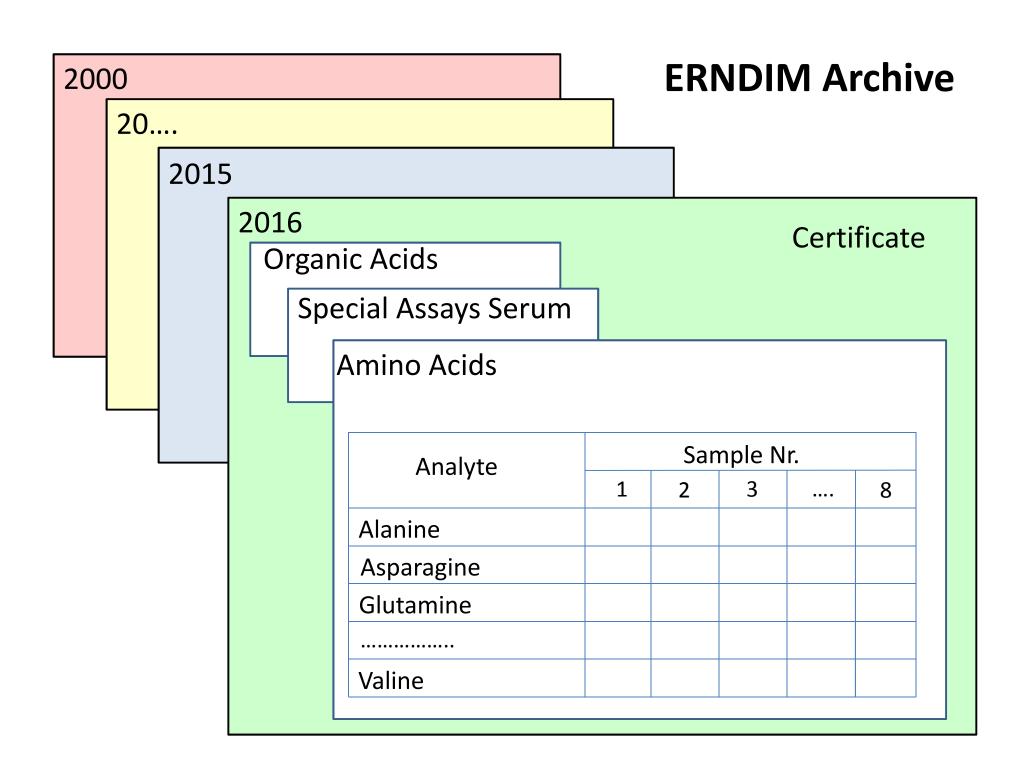
This certificate is to confirm that:

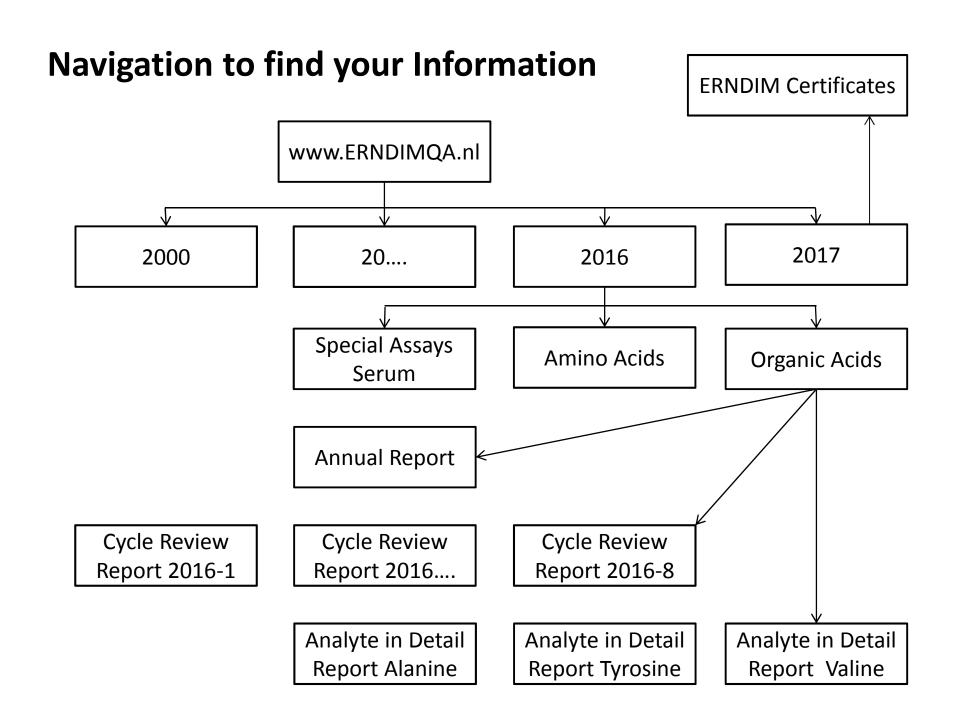
participated in the following External Quality Assurance schemes organised by ERNDIM in 2015 and has achieved performance in the individual schemes as shown.

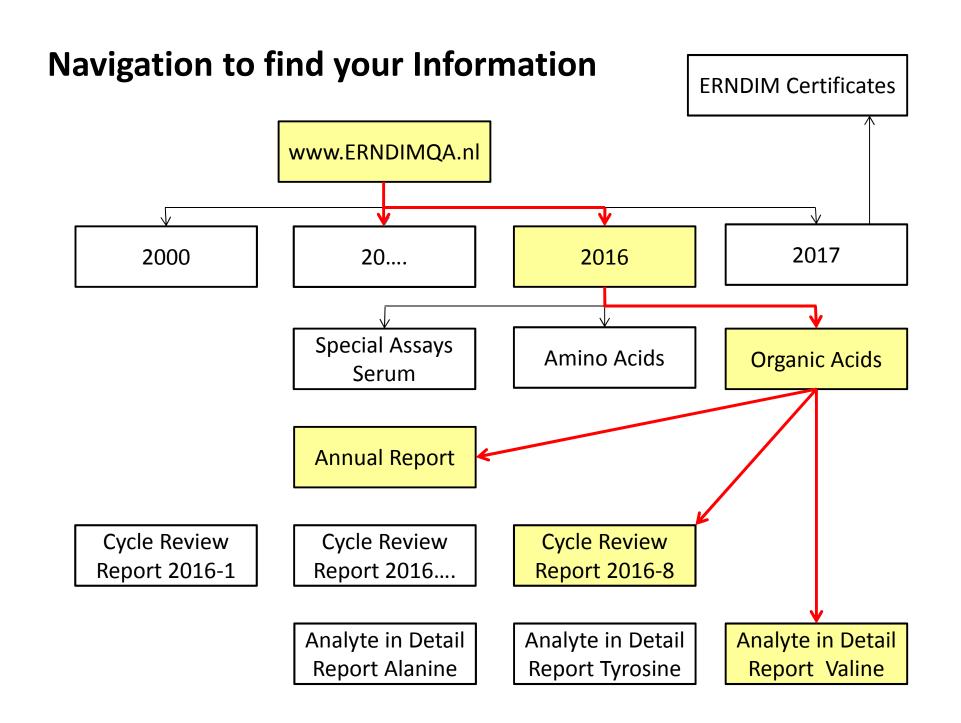
It is essential that the laboratory's own detailed annual reports for each scheme be referred to alongside this Certificate. For the Quantitative schemes these are available from www.erndimqa.nl and for the Qualitative schemes these are available from cscq.hcuge.ch/cscq/ERNDIM/ or by contacting ERNDIM at admin@erndim.org.

Quantitative Schemes

n in discourt account in Section 20 control of the second of Millians in Broth Control of Second in Albanda in Archard in Archard Albanda in Archard i	Subscribed	Number of Analytes					
IN TERMS A GAZUNT ADALAM IN AMANTY TERMS A UNITALT PERMAND IN LACATOR TERM IN POINTS ASAL CONTRACTOR IN PRODUCT ADALAM IN AMANTA TO THE ENGINEER OF AMANTA IN AMANDA IN AMANDA IN A REPORT AND ANALYSIS OF THE REPORT AND AN	AND TOPONOME TOPONOME A PRO- SCHOOL OF COMPANY TOPONOME A PRO- FERENCE OF CASE OF COMPANY TOPONOME A PRO- FERENCE OF CASE OF CASE OF COMPANY TOPONOME A PRO- FERENCE OF CASE O	Included in the scheme	For which results submitted by lab	Satisfactory Performance			
Amino Acids (serum) (Api 3200)	Yes	28	26	13			
Cystine in White Blood Cells (Api 3200 & Pentra)	Yes	3	a power of the graph of the p	10WGF 1912 2 110 4 17 4 1			
Lysosomal Enzymes (fibroblasts) (CBE)	Yes	10	10	10			
Purines and Pyrimidines (urine) ()	No	ALL ALL SUP	STATE OF THE PARTY	GASS KERNING			
Quantitative Organic acids (urine) (Agilent GC2)	Yes	23	18	16			
Special Assays Serum (Routine)	Yes	24	23	16			
Special Assays Urine (Routine)	Yes	16	13	12			







Aggregation level and Information Layers Website "Information Pyramid"

Aggregation Level	Nr Years	Nr Schemes	Nr Samples	Nr Analytes
		Jenemes	Jampies	Analytes
Archive	All	All	All	All
Certificate	1	All	All	All
Annual Report	1	1	All	All
Cycle Review Report	1	1	1	All
Analyte in Detail Report	1	1	1	1

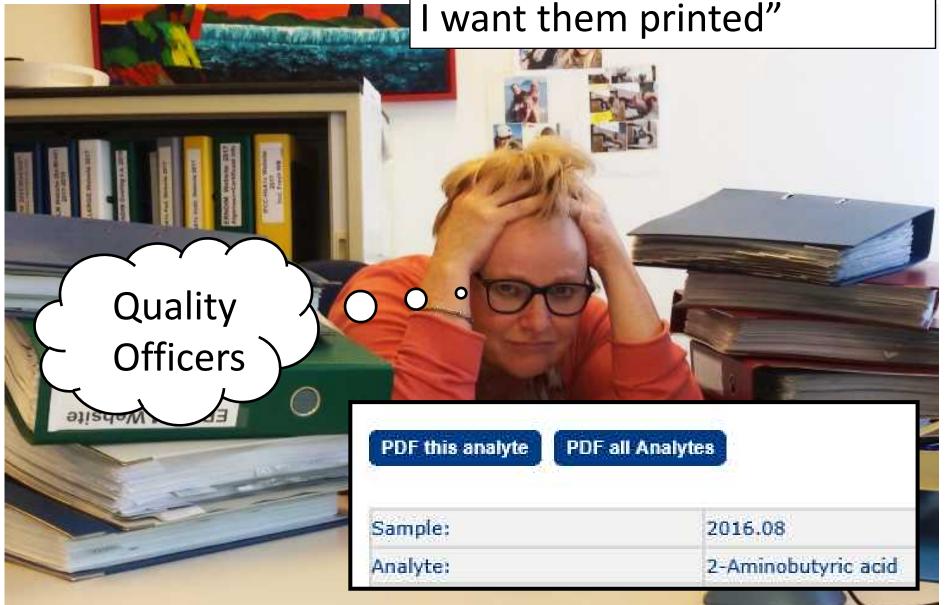
ERNDIM Website



"I do not want digital reports
I want them printed"



"I do not want digital reports I want them printed"



"In case I have poor performance I want to know why"



Excellent Performance: only green flags

Analyte	Accur (me		Precision (CV% duplicates)		Linearity (r)		Reco	9	Data all labs	
	Your Lab	All labs	Your Lab	All labs	Your Lab	All labs	Your Lab	All labs	m	Interlab cv
2-Aminobutyric acid	42.0	45.8	9.9%	7.1%	0.995	0.997	87%	101%	215	13.7%
Alanine	361	357	9.5%	5.2%	0.997	0.998	94%	95%	270	9.04%
Alloisoleuane	73.8	72.5	5.9%	7.0%	C.998	0.996	96%	95%	192	11.7%
Arginine	258	249	10.5%	4.4%	0.997	0.999	96%	96%	267	8.65%
Asparagine	77.9	89.0	14.5%	10.2%	0.986	0.991	86%	97%	249	19.8%
Aspartic Acid	53.1	49.3	16.4%	9.0%	0.985	0.993	71%	67%	260	19.3%
Citrulline	808	719	7.9%	6.2%	0.998	0.998	104%	95%	264	13.4%
Cystine	37.5	38.3	13.8%	9.0%	0.986	0.990	61%	59%	240	13.7%
Glutamic acid	119	120	9.7%	10.2%	0.990	0.987	118%	111%	269	15.3%
Glutamine	583	614	19.8%	7.1%	0.964	0.994	92%	95%	260	10.8%
Glycine	352	350	13.3%	4.9%	0.991	0.998	98%	97%	269	8.81%
Histidine	182	178	7.9%	6.6%	0.998	0.998	94%	91%	264	11.2%
Homocitruline	85.8	71.2	10.0%	6.8%	0.987	0.994	106%	87%	117	15.5%
Hydroxyproline	41.8	47.6	35.1%	10.9%	0.948	0.986	112%	94%	230	13.6%
Isoleucine	141	141	20.2%	5.6%	0.992	0.999	94%	94%	269	11.7%
Leucine	449	432	17.4%	5.5%	0.990	0.999	99%	93%	273	10.3%
Lysine	280	261	10.1%	5.3%	0.998	0.998	102%	90%	267	8.18%
Omith ne	284	266	9.2%	4.9%	0.999	0.999	105%	96%	270	10.4%
Phenylalarine	389	354	13.2%	4.9%	0.998	0.999	105%	92%	274	9.48%
Proline	346	346	9.7%	6.7%	0.995	0.996	96%	97%	255	9.54%
Saccharopine		99.8		5.6%		0.998		97%	101	11.0%
Serine	146	146	9.5%	5.5%	0.998	0.997	96%	97%	269	9.14%
Taurina	176	173	12.0%	5.5%	0.995	0.999	98%	96%	253	9.15%
Threonine	188	187	10.8%	4.5%	0.992	0.998	97%	97%	266	7.39%
Tyrosine	262	247	13.0%	5.1%	C.995	0.999	97%	92%	274	9.75%
Valine	313	304	13.9%	5.0%	0.993	0.999	99%	96%	274	8.61%

Good Performance: few red flags

Analyte	Accur (me		Preci (CV% du		Linez (r	100076	Reco	10000	Da	ta all labs
	Your Lab	All labs	Your Lab	All labs	Your Lab	All labs	Your Lab	All labs	n	Interlab co
2-Aminobutyric acid	43.8	45.8	4.3%	7.1%	0.995	0.997	104%	101%	215	13.7%
Alanine	363	357	6.3%	5.2%	0.998	0.998	101%	95%	270	9.04%
Alloisoleucine	61.6	72.5	5.2%	7.0%	0.996	0.996	84%	95%	192	11.7%
Arginine	252	249	2.5%	4.4%	0.999	0.999	99%	96%	267	8,65%
Asparagine	75.1	89.0	7.7%	10.2%	0.990	0.991	81%	97%	249	19.8%
Aspartic Acid	54.8	49.3	3.0%	9.0%	0.993	0.993	70%	67%	260	19.3%
Citrulline	740	719	10.1%	6.2%	0.997	0.998	102%	95%	264	13.4%
Lystine	35.1	38.3	9.7%	9.0%	0.993	0.990	59%	59%	240	13.7%
Glutamic acid	127	120	4.0%	10.2%	0.997	0.987	112%	111%	269	15.3%
Glutamine	628	614	7.2%	7.1%	0.990	0.994	96%	95%	260	10.8%
Glyane	346	350	5.4%	4.9%	0.999	0.998	96%	97%	269	8.81%
histidine	180	178	8.0%	6,6%	0.998	0.998	93%	91%	264	11.2%
Homocitrulline	102	71.2	5.4%	6.8%	0.990	0.994	3.30%	87%	117	15.5%
tydroxyproline	45.9	47.6	10.1%	10.9%	0.992	0.986	91%	94%	230	13.6%
soleucine	140	141	7.1%	5.6%	0.999	0.999	93%	94%	269	11.7%
Leucine	435	432	6.6%	5.5%	0.998	0.999	93%	93%	273	10.3%
Lysine	259	261	3.1%	5.3%	0.999	0.998	89%	90%	267	8.18%
Ornithine	262	266	2,8%	4.9%	1.000	0.999	94%	96%	270	10.4%
Phenylalanine	359	354	4.3%	4.9%	1.000	0.999	93%	92%	274	9,48%
Proline	355	346	6.2%	6.7%	0.996	0.996	102%	97%	255	9.54%
Saccharopine	102	99.8	3.0%	5.6%	0.999	0.998	105%	97%	101	11.0%
Serine	148	146	2.6%	5.5%	0.995	0.997	101%	97%	269	9.14%
Taurine	158	173	16,4%	5.5%	0.990	0.999	95%	96%	253	9.15%
Threonine	183	187	6,4%	4.5%	0.997	0.998	95%	97%	266	7.39%
Tyrosine	246	247	6.8%	5.1%	0.999	0.999	92%	92%	274	9.75%
Valime	300	304	6.7%	5.0%	0.999	0.999	95%	96%	274	8.61%

Poor Performance: Many Flags in different colours

Analyte	Accuracy (mean)		Precision (CV% duplicates)		Linearity (r)		Recovery (%added analyte)		Data all labs	
	Your Lab	All labs	Your Lab	All labs	Your Lab	All labs	Your Lab	All labs	n	Interlab cv
2-Aminobutyric acid	53.4	45.8	13.0%	7.1%	0.983	0.997	124%	101%	215	13.7%
Alanine	377	357	21.7%	5.2%	0.984	0.998	103%	95%	270	9.04%
Alloisoleucine	MP	72.5	18.6%	7.0%	0.959	0.996	76%	95%	192	11.7%
Arginine	230	249	5.7%	4.4%	0.997	0.999	86%	96%	267	8.65%
Asparagine	82.5	89.0	22.6%	10.2%	0.965	0.991	89%	97%	249	19.8%
Aspartic Acid	51.7	49.3	29.7%	9.0%	0.980	0.993	95%	67%	260	19.3%
Citrulline	742	719	15.0%	6.2%	0.994	0.998	97%	95%	264	13.4%
Cystine	-48.5	38.3	19.1%	9.0%	0.970	0.990	38%	59%	240	13.7%
Glutamic acid	125	120	11.0%	10.2%	0.987	0.987	115%	111%	269	15.3%
Glutamine	ORFR	614	ORFR	7.1%	ORFR	0.994	ORFR	95%	260	10.8%
Glycine	MP	350	9.2%	4.9%	9,795	0.998	87%	97%	269	8.81%
<u>Histidine</u>	231	178	132.2%	6.6%	0.995	0.998	343%	91%	264	11.2%
Homocitrulline		71.2		6.8%		0.994		87%	117	15.5%
Hydroxyproline	46.9	47.6	10.0%	10.9%	0.977	0.986	101%	94%	230	13.6%
Isoleucine	140	141	8.7%	5.6%	0.999	0.999	93%	94%	269	11.7%
Leucine	443	432	4.8%	5.5%	0.999	0.999	97%	93%	273	10.3%
<u>Lysine</u>	OR	261	OR	5.3%	OR.	0.998	OR	90%	267	8.18%

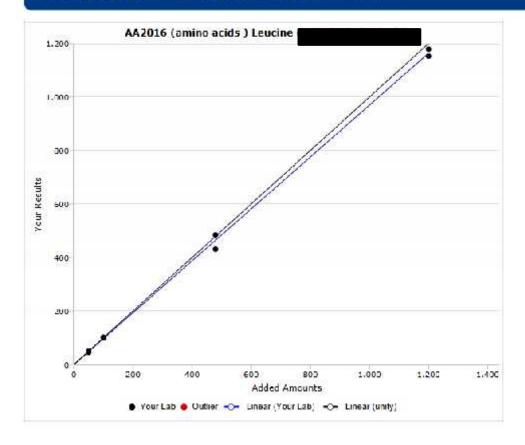
Colour Flag = indication reason Poor Performance

Analyte	Accuracy (mean)		Precision (CV% duplicates)		Linearity (r)		Recovery (%added analyte)		Data all labs	
	Your Lab	All labs	Your Lab	All labs	Your Lab	Ad labs	our Lab	All labs	n	Interlab cv
2-Aminobutyric acid	53.4	45.8	13.0%	7.1%	0.983	1.997	124%	101%	215	13.7%
Alanine	377	357	21.7%	5.2%	0.284	0.998	103%	95%	270	9.04%
Alloisoleucine	MP	72.5	18.6%	7.0%	0.954	0.996	76%	95%	192	11.7%
Arginine	230	249	5.7%	4.4%	0 997	0.999	86%	96%	267	8.65%
Asparagine	82.5	89.0	22.6%	17.2%	0.965	0.991	89%	97%	249	19.8%
Aspartic Acid	51.7	49.3	29.7%	9.0%	0.980	0.9	95%	67%	260	19.3%
Citrulline	742	719	15.0%	6.2 %	0.994	0.998	97%	95%	264	13.4%
Cystine	46.3	38.3	13.1%	5.0%	0.970	0 990	38%	59%	240	13.7%
Glutamic acid	125	120	11.0%	10.2%	0.987	987	115%	111%	269	15.3%
Glutamine	ORFR	614	ORFR	7.1%	ORFR	0.994	ORFR	95%	260	10.8%
<u>Glycine</u>	MP	350	9.2%	4.9%	0.265	0.998	87%	97%	269	8.81%
<u>Histidine</u>	231	178	132/2%	6.6%	0.995	0.998	143%	91%	264	11.2%
Homocitrulline		71.2		6.8%		0.994		87%	117	15.5%
Hydroxyproline	46.9	47.6	10.0%	10.9%	0.977	0.986	101%	94%	230	13.6%
Isoleucine	140	141	8.7%	5.6%	0.999	0.999	93%	94%	269	11.7%
Leucine	443	432	4.8%	5.5%	0.9	0.999	97%	93%	273	10.3%
<u>Lysine</u>	OR	261	OR	5.3%	OR.	0.998	OR	90%	267	8,18%

Leucine: Good Performance

Analyte	Accuracy (mean)		Precision (CV% duplicates)		Linearity (r)		Recovery (%added analyte)		Data all labs	
	Your Lab	All labs	Your Lab	All labs	Your Lab	All labs	Your Lab	All labs	n	Interlab cv
Leucine	443	432	4.8%	5.5%	0.999	0.999	97%	93%	273	10.3%

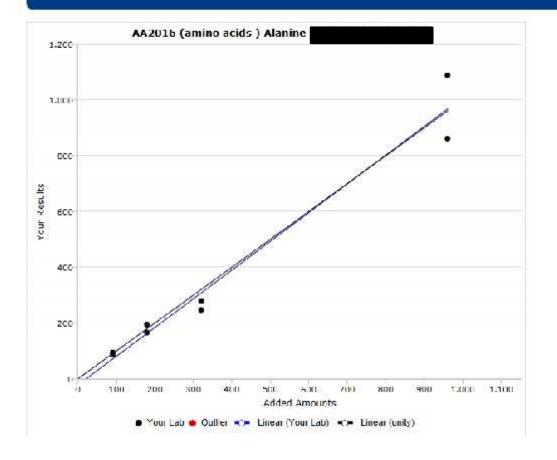
ERNDIMQA - Graphical Presentation



Alanine: Red Flag for Poor Precision

Analyte	Accuracy (mean)		Precision (CV% duplicates)		Linearity (r)		Recovery (%added analyte)		Data all labs	
	Your Lab	All labs	Your Lab	All labs	Your Lab	All labs	Your Lab	All labs	n	Interlab cv
Alanine	377	357	21.7%	5.2%	0.984	0.998	103%	95%	270	9.04%

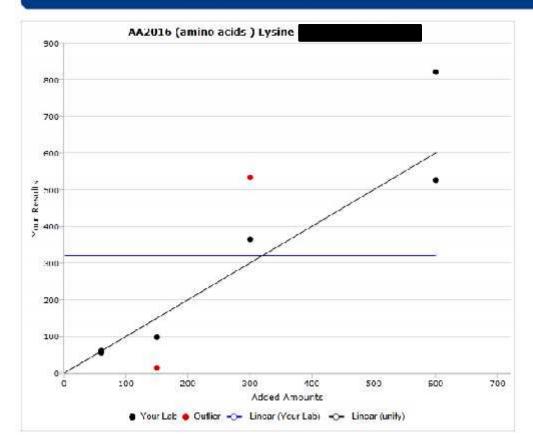
ERNDIMQA - Graphical Presentation



Lysine: purple flag for outliers

Analyte	Accuracy (mean)		Precision (CV% duplicates)		Linearity (r)		Recovery (%added analyte)		Data all labs	
	Your Lab	All labs	Your Lab	All labs	Your Lab	All labs	Your Lab	All labs	n	Interlab cv
Lysine	OR	261	OR	5.3%	OR	0.998	OR	90%	267	8.18%



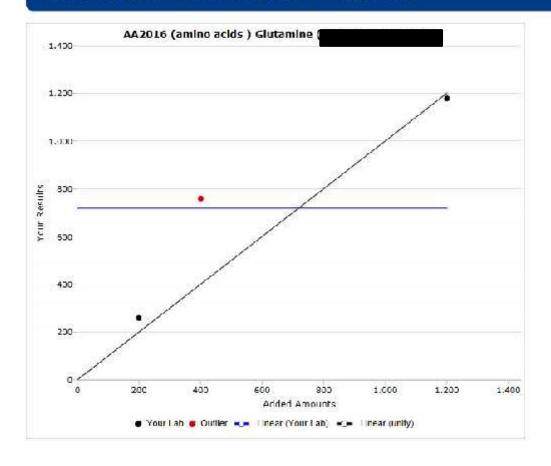


OR = Outlying Results

Glutamine: yellow flag for outlying and too few results

Analyte	Accuracy (mean)		Precision (CV% duplicates)		Linearity (r)		Recovery (%added analyte)		Data all labs	
	Your Lab	All labs	Your Lab	All labs	Your Lab	All labs	Your Lab	All labs	n	Interlab cv
Glutamine	ORFR	614	ORFR	7.1%	ORFR	0.994	ORFR	95%	260	10.8%

ERNDIMQA - Graphical Presentation

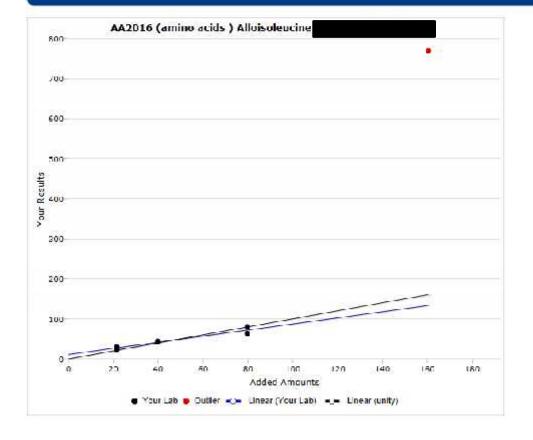


ORFR = Outlying Results and too Few Results

Alloisoleucine: amber flag for missing pair

Analyte	Accuracy (mean)		Precision (CV% duplicates)		Linearity (r)		Recovery (%added analyte)		Data all labs	
	Your Lab	All labs	Your Lab	All labs	Your Lab	All labs	Your Lab	All labs	n	Interlab cv
Alloisoleucine	MP	72.5	18.6%	7.0%	0.959	0.996	76%	95%	192	11.7%

ERNDIMQA - Graphical Presentation



ERNDIM Website



Scientific Advisors:

"We want a score list for Performance Support Letters"







Score = % Flags

>25% Letter Scientific Advisor

Example Purines & Pyrimidines 48 Labs

12 No flag at all

11 0 - 5% flags

5 5 – 10% flags

4 10 – 15% flags

8 15 – 20% flags

3 20 – 25% flags

1 25% flags

4 >25% flags



- a. to include the qualitative schemes on the certificate
- b. Automatic generation of certificates "



Administrator

- Schemes
- Units
- o Calculation
- Free Query
- O Query Mean SD
- ▶ Certificates
- ▶ User administration
- o General Information



QUALITY ASSURANCE IN LABORATORY TESTING FOR IEM

Certificate of Participation and Performance for 2016

This certificate is to confirm that:

CHUV, LAUSANNE (ERN0001)

participaled in the following External Quality Assurance schemes organised by ERNDIM in 2016 and has achieved performance in the Individual schemes as shown

It is essential that the laboratory's own detailed annual reports for each scheme be referred to alongside this Certificate. For the Quantitative schemes these are available from www.erndimqa.nl and for the Qualitative schemes these are available from cscc.hcuge.ch/cscq/ERNDIM or by contacting ERNDIM at admin@emdim.org.

Quantitative Schemes

the first course of the first parties from the first course of the	Subscribed	ANNUAL PROPERTY.	Number of Analytes	STANLE SUSTAIN THE
TELECT OF MALE TO THE STATE OF	THE STATE OF	Included In the scheme	For which results submitted by lab	Satisfactory Performance
Amino Acids (serum) [O. Boulat]	Yes	26	26	26
Cystine in White Blood Cells []	No	TANK THE PRIVER HIS	CONTRACTOR DESIGNATIONS OF THE PERSON	DAMES AND THE WARRANT OF
Lysosomal Enzymes (fibroblasts) []	No	LI THOUGH THE THE TANK		STATE OF STA
Neurotransmitters in CSF []	No			
Purines and Pyrimidines (urine) [O. Boulat]	Yes	20	19	pillering Agency of Manuschal
Quantitative Organic acids (urine) [O. Boulat]	Yes	24	24	24
Special Assays Serum [O. Boulat]	Yes	26	14	14
Special Assays Urine [O. Boulat]	Yes	16	10	10

Qualitative Schemes

	Subscribed	Submitted Results	Satisfactory Performance
Congenital Disorders of Glycosylation (serum)	No	The second is the second of the second	ON A SECRET LEADING THAT IS ONLY
Diagnostic Proficiency Testing (urine)	Yes	Yes	Ycs
Qualitative Acyl Carnitines (DBS)	Yes	Yes	Yes
Qualitative Organic Acids (urine)	Yes	Yes	Yes
Urine Mucopolysaccharides (urine)	No		

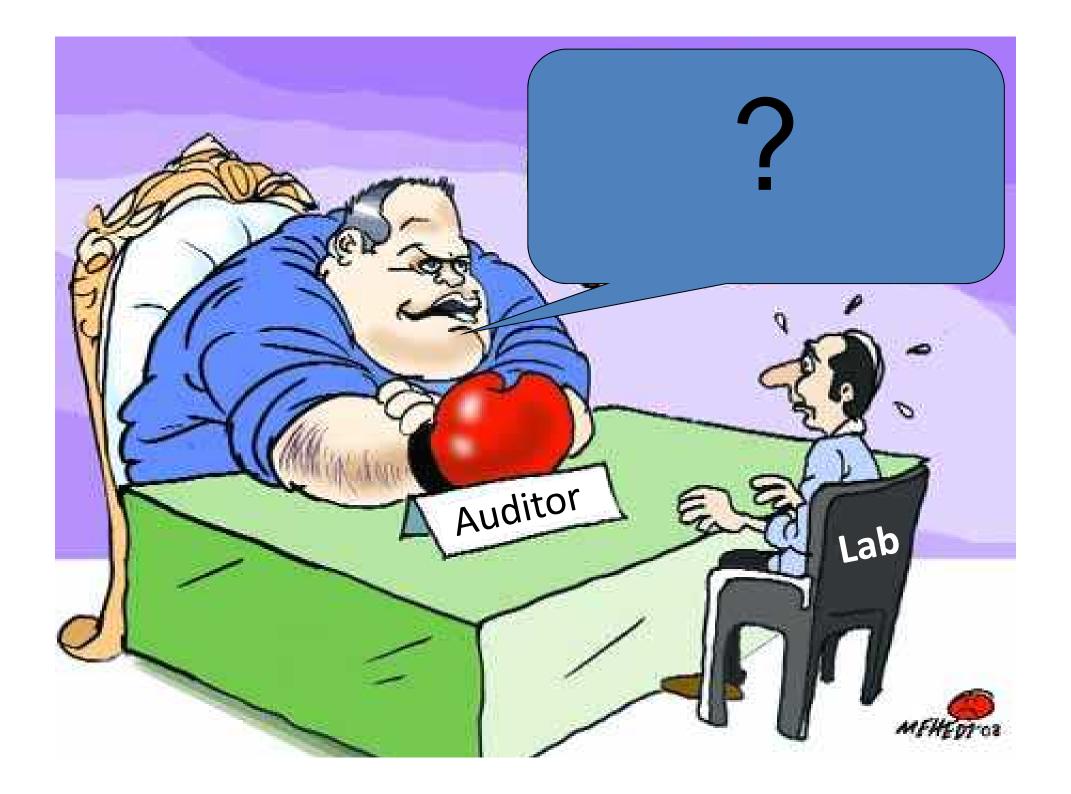
ERNDIM Website

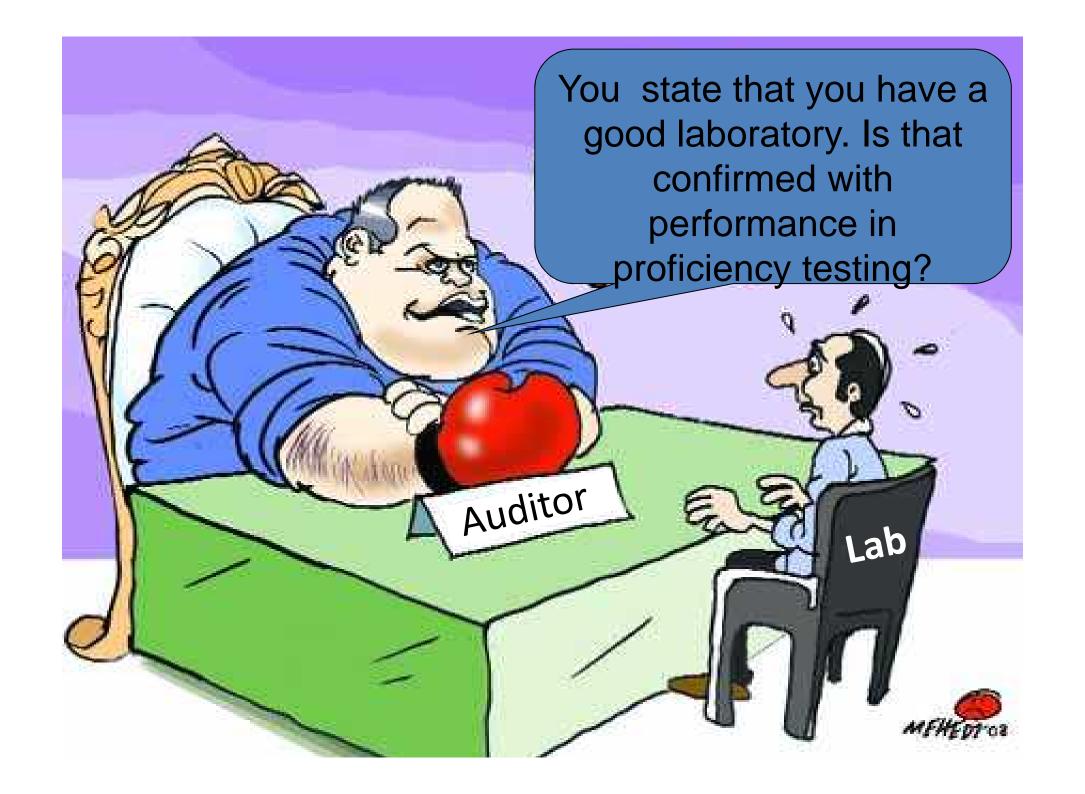


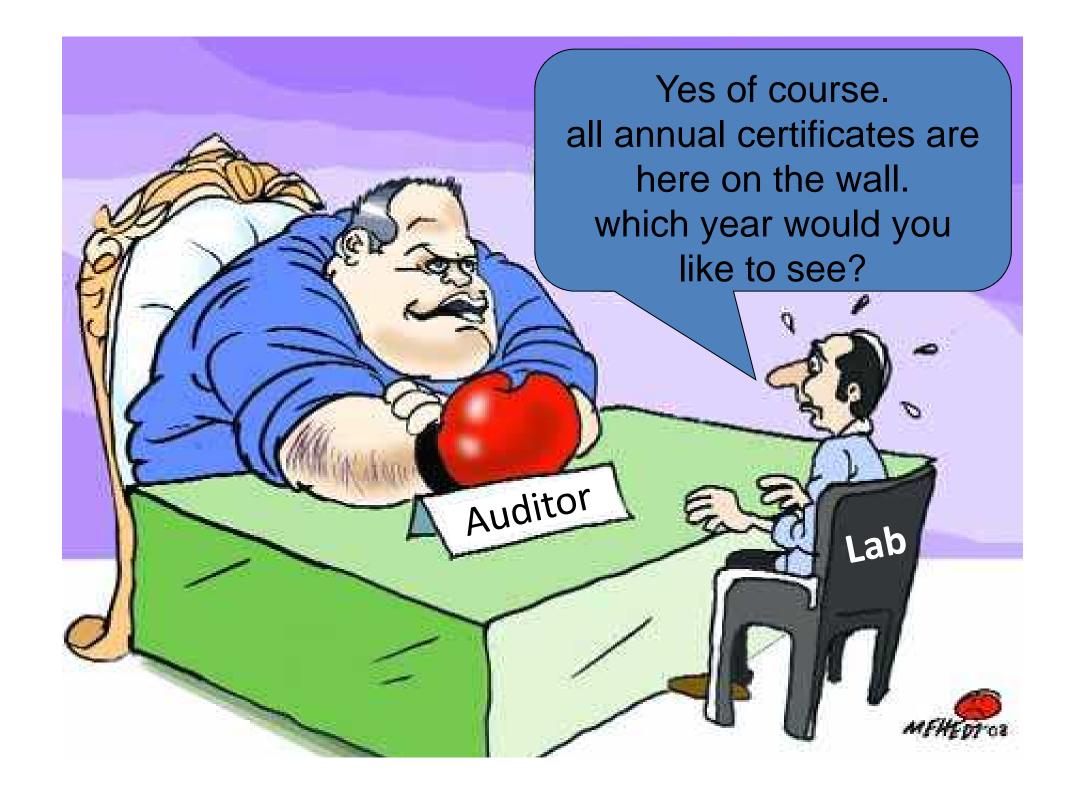


A common dialogue

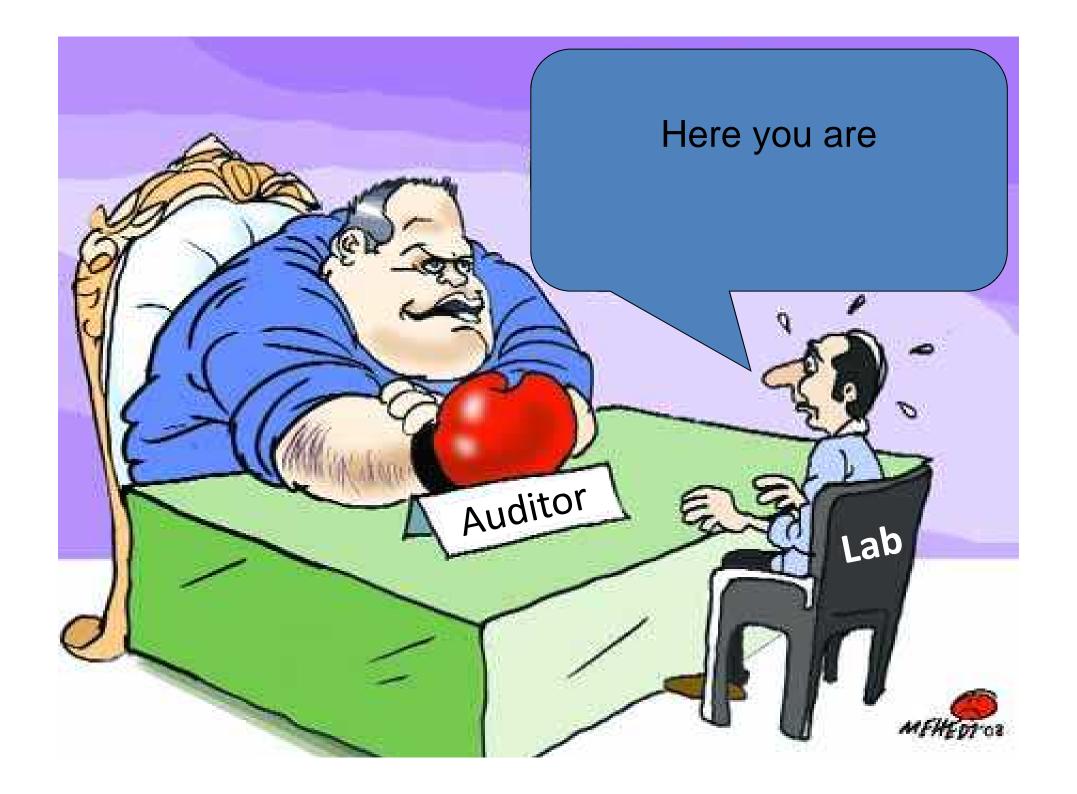














Certificate of Participation and Performance for 2015

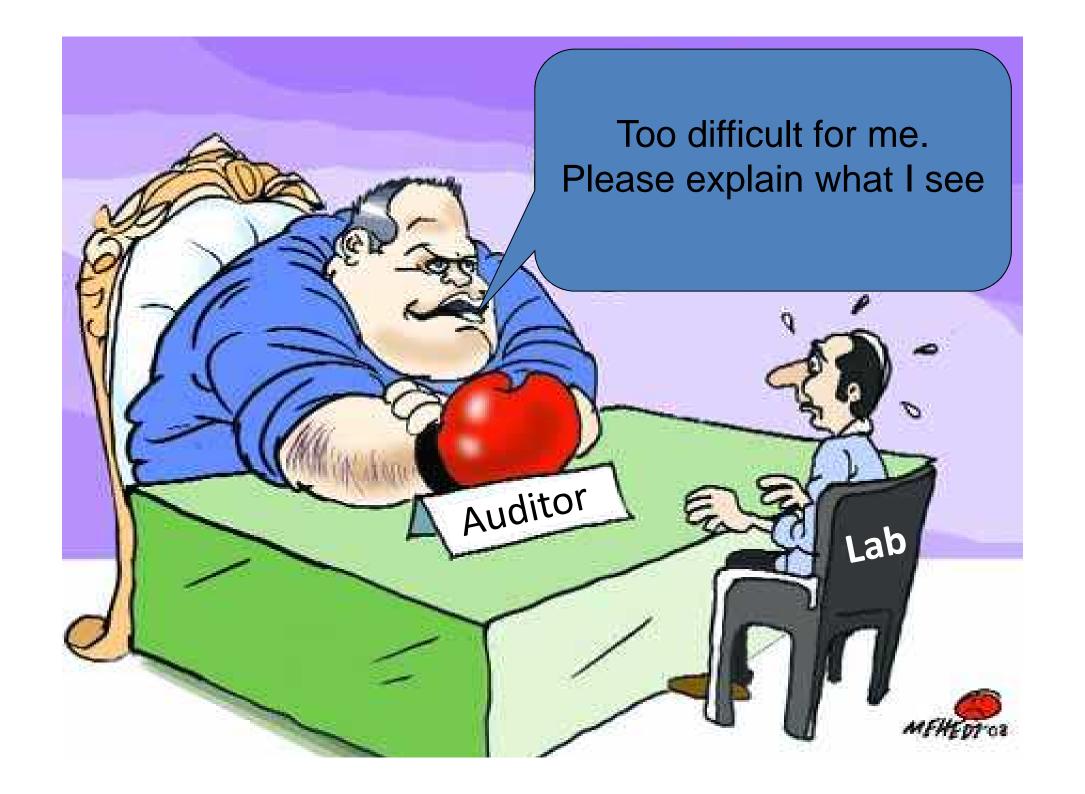
This certificate is to confirm that:

participated in the following External Quality Assurance schemes organised by ERNDIM in 2015 and has achieved performance in the individual schemes as shown.

It is essential that the laboratory's own detailed annual reports for each scheme be referred to alongside this Certificate. For the Quantitative schemes these are available from www.erndimqa.nl and for the Qualitative schemes these are available from cscq.hcuge.ch/cscq/ERNDIM/ or by contacting ERNDIM at admin@erndim.org.

Quantitative Schemes

n in discourt account in Section 20 control of the second of Millians in Broth Control of Second in Albanda in Archard in Archard Albanda in Archard i	Subscribed	MODAGE IS AND AND PARTY OF THE SERVICE OF THE SERVI	Number of Analytes	OF ACTUALITY IN MANAGEMENT AND A TOTAL OF THE PARTY OF TH
IN TERMS A GAZUNT ADALAM IN AMANTY TERMS A UNITALT PERMAND IN LACATOR TERM IN POINTS ASAL CONTRACTOR IN PROMISE A CONTRACTOR IN AMANTA IN THE SECURITY OF A SECURITY IN AMANTA IN A SECURITY AND A ANTITY THE RESIDENT ACCOUNT IN AMANTA IN LICENSES TO THE RESIDENT AND ANTITY OF A SECURITY THE RESIDENT AND AND A SECURITY ADALAM IN THE RESIDENT AND AND A SECURITY OF A SECURITY ADALAM IN A SECURITY OF A SECURITY OF A SECURITY OF A SECURITY OF A SECURITY ADALAM IN A SECURITY ADALAM IN A SECURITY OF A SECURITY	NAME OF THE OWNERS OF THE OWNER OF THE OWNER OF THE OWNER OWNERS OF THE OWNERS	Included in the scheme	For which results submitted by lab	Satisfactory Performance
Amino Acids (serum) (Api 3200)	Yes	28	26	13
Cystine in White Blood Cells (Api 3200 & Pentra)	Yes	3	a power of the graph of the p	OWNER TO ZEROWAY
Lysosomal Enzymes (fibroblasts) (CBE)	Yes	10	10	10
Purines and Pyrimidines (urine) ()	No	ALL ALL SUP	STATE OF THE PARTY	GASS KERNING
Quantitative Organic acids (urine) (Agilent GC2)	Yes	23	18	16
Special Assays Serum (Routine)	Yes	24	23	16
Special Assays Urine (Routine)	Yes	16	13	12

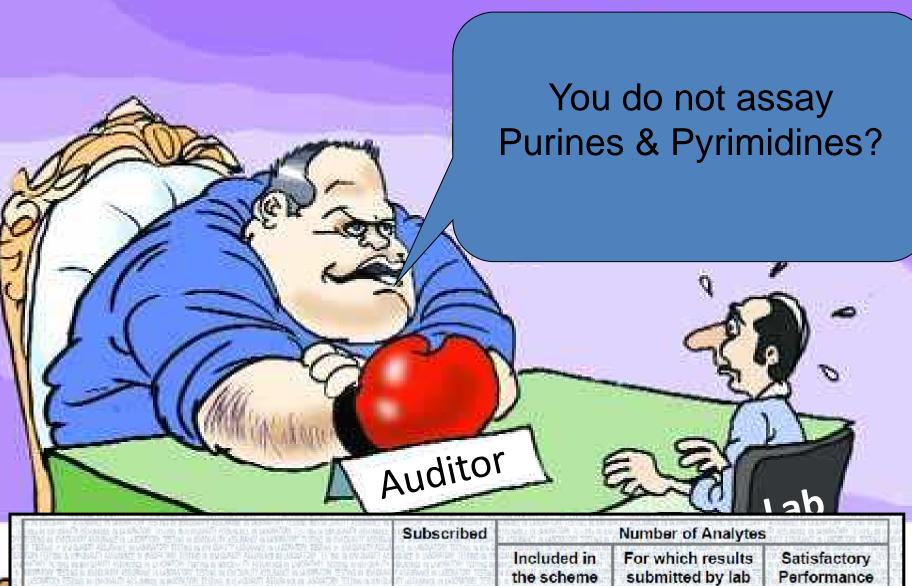




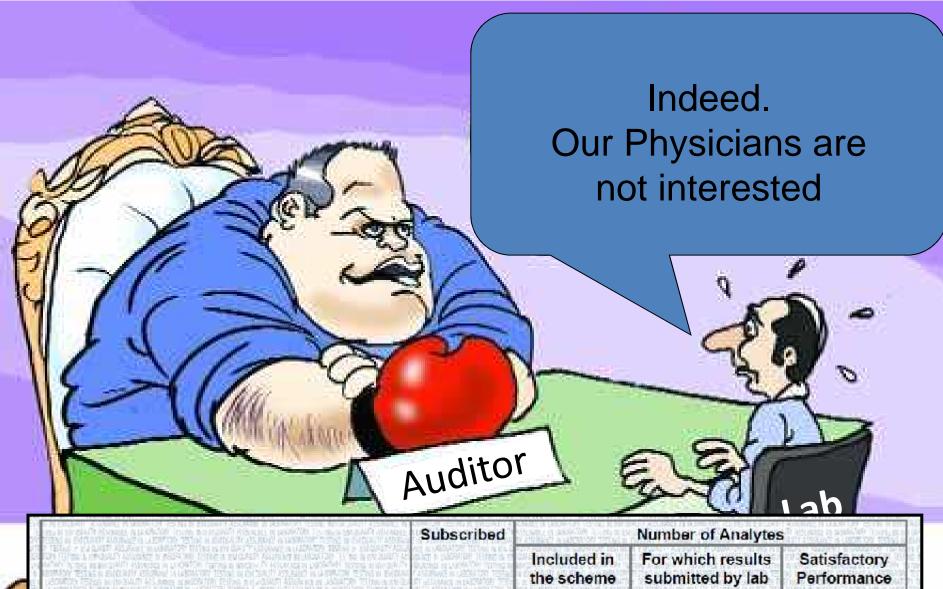
enc, in dia dalla Producció di Caldina de Producció de Escala de Astronoció di Dobalda Producció de Caldina de Tenas di Dalca I y Alganies di Lega Coy Tenas, di Caldina de Astronoció di Lagando de Producció de Caldina de	Subscribed	P BANKS IN SWAFON VICTOR OF BY ALLOW TO STANK OF THE SAME OF THE S	OF A STABLES IN DAVIA YOU TELYING SAULT A DOWN OF IN MARKET THE MA	
FIGURE IN CARACTER ASSESSMENT IN ASSESSMENT TO THE PLAN ASSESSMENT ASSESSMENT TO THE RESIDENCE OF THE PROJECT ASSESSMENT IN ASSESSMENT ASSESSMENT OF THE RESIDENCE OF THE RESIDE	THE RESIDENCE OF THE PARTY OF T	Included in the scheme	For which results submitted by lab	Satisfactory Performance
Amino Acids (serum) (Api 3200)	Yes	28	26	13
Cystine in White Blood Cells (Api 3200 & Pentra)	Yes	ESST Bridger 3/DAT/ 47/MA ZWITCH TOWN 3/DESST COM	C I BEST THE SHIP IN A SHIP IN	2000 E92
Lysosomal Enzymes (fibroblasts) (CBE)	Yes	10	THE REPORT OF A SECOND AND	CALCONION OF THE WEST
Purines and Pyrimidines (urine) ()	No		SATI ADAM A LONGO TO MAN BARAN SATI A CAMBA LA MATAN TOMA SATI	r all mag in december thing in the administration in the contraction in Section
Quantitative Organic acids (urine) (Agilent GC2)	Yes	23	18 automatica (18 aut	16
Special Assays Serum (Routine)	Yes	24	23 44 1 100 23	16
Special Assays Urine (Routine)	Yes	PEAL NEVE 16 SERVICE AS	CONTINUE TESTING A PERSON ASSESSMENT OF THE PARTY OF THE	on term a rate of 45.0 ACL



THE IN THE MAN PRODUCE A CHICATON THE WE IN THE MAN A MANAGE IN DISCRIMINATION OF THE MAN AND AND THE PARTY AND A SECOND THE WAS IN THE WORLD THE	Subscribed	PRANCE IS DANFOR STORE A RESIDENCE OF STREET	Number of Analytes	OF ASSESSED IN PARACON SERVICE SHIFT A DARWING IN MARKATORY TERM
F TERMIN IN CARACTER ASSESSMENT IN THE PROPERTY ASSESSMENT ASSESSMENT ASSESSMENT IN THE PROPERTY ASSESSMENT AS	THE RESIDENCE OF THE PARTY OF T	Included in the scheme	For which results submitted by lab	Satisfactory Performance
Amino Acids (serum) (Api 3200)	Yes	28	26	13
Cystine in White Blood Cells (Api 3200 & Pentra)	Yes	3 3	CHARLES TO SHIP THE REAL PROPERTY OF THE PARTY OF THE PAR	JOHNS COM ZEROMITAN
Lysosomal Enzymes (fibroblasts) (CBE)	Yes	10	THE REPORT OF A SECOND AND	AND WEST OF STREET
Purines and Pyrimidines (urine) ()	No		SATISTICS A CONTROL OF THE BEAUTY OF THE BEA	Transmission acceptor from a functional approximation acceptor
Quantitative Organic acids (urine) (Agilent GC2)	Yes	23	18 m 1 m 1 m 1 m 1 m 1 m 1 m 1 m 1 m 1 m	16
Special Assays Serum (Routine)	Yes	24	n Ban, i grad 23 kula i ukontak	16
Special Assays Urine (Routine)	Yes	75 AL 9 EVO 16 SERVICE A	ONLINE DE LES ANTA 13 PARAMETERS DE LA SE	on Terms a 142 of ASSAC



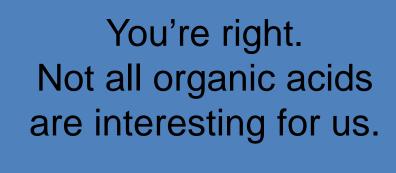
in the control of the	Subscribed	cribed Number of Analytes							
THE CONTROL OF THE PROPERTY OF		Included in the scheme	For which results submitted by lab	Satisfactory Performance					
Amino Acids (serum) (Api 3200)	Yes	28	26	13					
Cystine in White Blood Cells (Api 3200 & Pentra)	Yes	3 3	3 PATT ABOUT	2 2					
Lysosomal Enzymes (fibroblasts) (CBE)	Yes	10	10	10					
Purines and Pyrimidines (urine) ()	No No		HELP WER HEAVE BOND FOR	THE NAME OF STREET OF TWO					

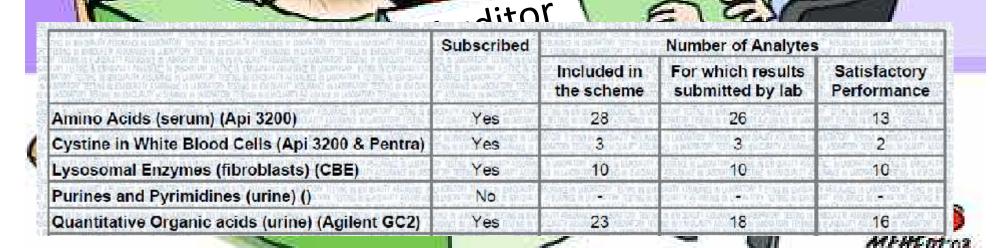


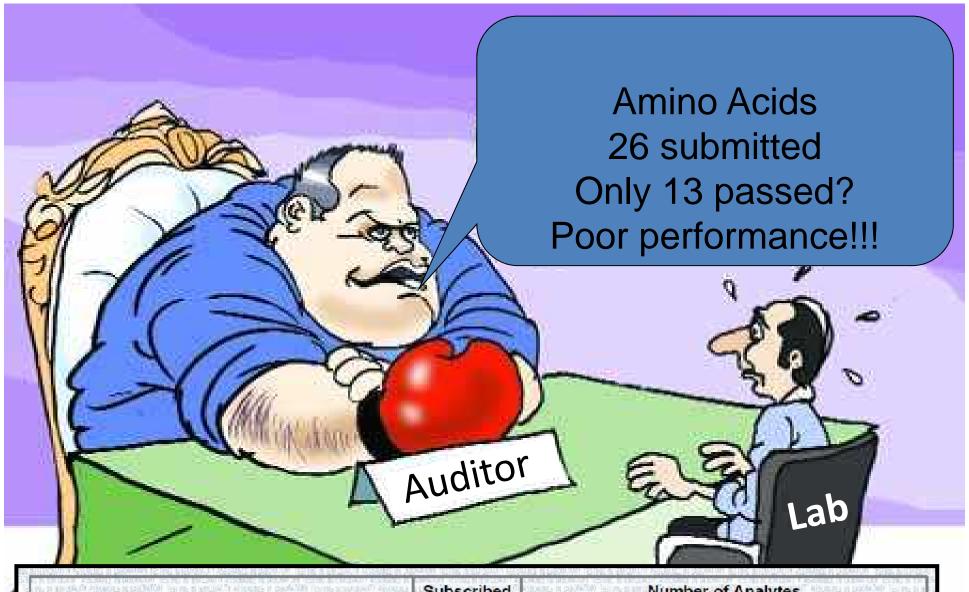
THE RESIDENCE OF THE PROPERTY	Subscribed	Number of Analytes						
FIGURE AND ALL AND	AND A SACRETON TESTING A PARTICULAR OF THE SACRETON OF THE SAC	Included in the scheme	For which results submitted by lab	Satisfactory Performance				
Amino Acids (serum) (Api 3200)	Yes	28	26	13				
Cystine in White Blood Cells (Api 3200 & Pentra)	Yes	3 000	H SANTON EN 3 HAVE A BANCO A	ASSETS TO PRODUCT OF A				
Lysosomal Enzymes (fibroblasts) (CBE)	Yes	10	10 manufest	10				
Purines and Pyrimidines (urine) ()	No	XXXXX XXXXXX II AAR II	TOWN WEST TRANSPORTED TO	THE WAR IN THE LITTLE THE				



THE RESIDENCE OF MEMBERS AND ADMINISTRATION OF THE PROPERTY OF	Subscribed	VIERRICO IN 125/MATON TETRA DE EN EL ATENDA DE LA CONTRACTOR DE LA CONTRAC	Number of Analytes	AND A DOMAC IN LABORATORY THE WAR
THE METERS AND THE ASSESSMENT OF THE PROPERTY OF THE ASSESSMENT OF THE PROPERTY OF THE PROPERTY OF THE ASSESSMENT OF THE PROPERTY OF THE PROPE	AND THE PROPERTY OF THE PROPER	Included in the scheme	For which results submitted by lab	Satisfactory Performance
Amino Acids (serum) (Api 3200)	Yes	28	26	13
Cystine in White Blood Cells (Api 3200 & Pentra)	Yes	CONTINUE TO STATE AND ADDRESS OF THE PERSON NAMED ADDRESS OF THE PERSON NAMED AND ADDRESS OF T	TO DESCRIPTION OF SAME AND A PROPERTY AND A PROPERTY AND A PROPERTY AS A	2 2 100
Lysosomal Enzymes (fibroblasts) (CBE)	Yes	10	10	10
Purines and Pyrimidines (urine) ()	No	THE RESERVE OF THE RE	PENTAGEN A DEATH TO STREET STREET	N SELAND A MAN TO A SELECT OF THE SE
Quantitative Organic acids (urine) (Agilent GC2)	Yes	23	18	16







3 For the data of a company is a supplier of the company of the	Subscribed	Number of Analytes				
FAIR TESTINGS (2004) TAXOSAS IN AMERICA TO THE STANDARD WINDOWS IN AMERICA TO THE RESIDENCE AND CONTROL TO THE ACCURATE AND CONTROL TO ACCURATE ACC	ME S MONTH TO BE READ TO SEE THE SEE TO SEE THE SEE TH	Included in the scheme	For which results submitted by lab	Satisfactory Performance		
Amino Acids (serum) (Api 3200)	Yes	28	26 1000 1 20	The many 13 to come		

WEHEDIOS



TO BE THE TRANSPORT OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY ASSESSED. THE PROPERTY OF THE PROPERTY ASSESSED AS A STATE OF THE PROPERTY ASSESSED. THE PROPERTY OF THE PROPERTY ASSESSED. THE PROPERTY OF THE PROPERTY ASSESSED.	Subscribed	MADORITE IN CARACTER TO A STATE OF THE STATE	T WISOLDER IN LEGISLATION TERMS IN A COURT OF THE PARTY O	
THE DESIGN OF MODELLA SCHOOL OF WEIGHT FOR THE WAS A STATE STATE OF THE WAS A STATE OF TH	TO A MEDIATE IN THE MEDIA OF THE MEDIA	Included in the scheme	For which results submitted by lab	Satisfactory Performance
Amino Acids (serum) (Api 3200)	Yes	28	26	The control of the control of

WEHEDLOS

ERNDIMQA - Annual Report - AA

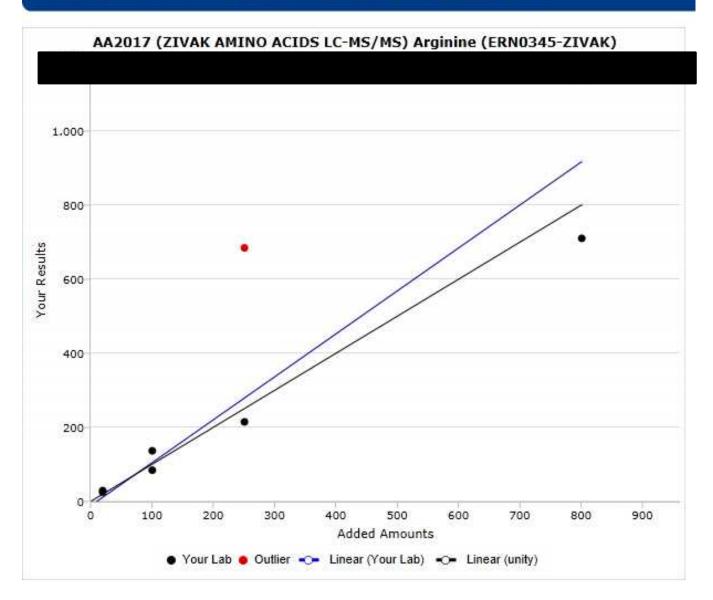
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Analyte	Accu (me		200000000000000000000000000000000000000	recision Linear o duplicates) (r)			Recor (%added		De	ila all labs
	Your Lab	All labs	Your Lab	All labs	Your Lab	All labs	Your Lab	All labs	n	Interlab co
2-Aminobutyric acid	50.3	49.4	23.0%	6.5%	8 938	0.983	98%	92%	217	10.5%
Alamine	356	378	17.0%	5.1%	6.925	0.999	96%	94%	278	9.72%
Alloisoleucine		44.9		6.9%		0.995		92%	202	12.5%
<u>Arginine</u>	320	284	31.3%	5.4%	0.043	0.999	6.46%	95%	276	10.1%
Asparagine	65.9	64.2	14.1%	7.9%	0.985	0.993	91%	97%	255	18.6%
Aspartic Acid	68.5	79.1	3476	5.5%	0.82	0.997	GG%	03%	266	16.2%
Ctrulline	OR	712	OR.	5.4%	DR	0.999	OR	94%	274	14.5%
Cystine	OR	42.4	OR	6.2%	DR	0.992	GR	56%	250	12.4%
Glutamic acid	20.1	136	33.3%	6.7%	0.545	0.988	71%	100%	278	10.6%
Glutamine	677	627	8.2%	5.8%	0.988	0.997	94%	93%	266	11,0%
Glycine	382	347	27.6%	4.4%	0.001	0.998	103%	95%	277	8.28%
Habdine	144	139	14.0%	5.5%	0.988	0.993	110%	94%	272	10.2%
Hydroxyproline	60.2	60.2	22.4%	9.5%	0.900	0.978	113%	102%	240	13.5%
Isoleucine	ORFR	964	ORFR	4.9%	ORFR	0.998	ORFR	93%	280	11.6%
Leucine	ORFR	439	ORFR	5.0%	ORFR	0.999	ORFR.	95%	282	9.99%
Lysine	100	235	101.010	5.0%	0.015	0.998	6229	90%	275	9,78%
Ornithins	246	258	8.2%	5.1%	0.994	0.999	99%	93%	279	11.3%
Phenylalanine	309	355	37.0%	4.8%	(0.000	0.999	80%	91%	282	9.53%
Proline	.235	292	33.8%	6.3%	0.936	0.998	69%	94%	264	10.6%
Serine	150	159	8333%	4.8%	0.991	0.999	90%	96%	275	8.61%
Taurine	157	150	22.3%	4.6%	0.976	0.997	122%	95%	259	8.30%
<u>Threonine</u>	254	246	21.5%	4.3%	0.038	0.998	1120	9/%	272	7.54%
Tyrcsine	285	287	4.2%	4.4%	1.000	0.999	92%	93%	282	8.15%
Valine	289	307	3.9%	4.3%	0.999	0.999	89%	96%	283	/.88%

"In the Annual Report You see....."

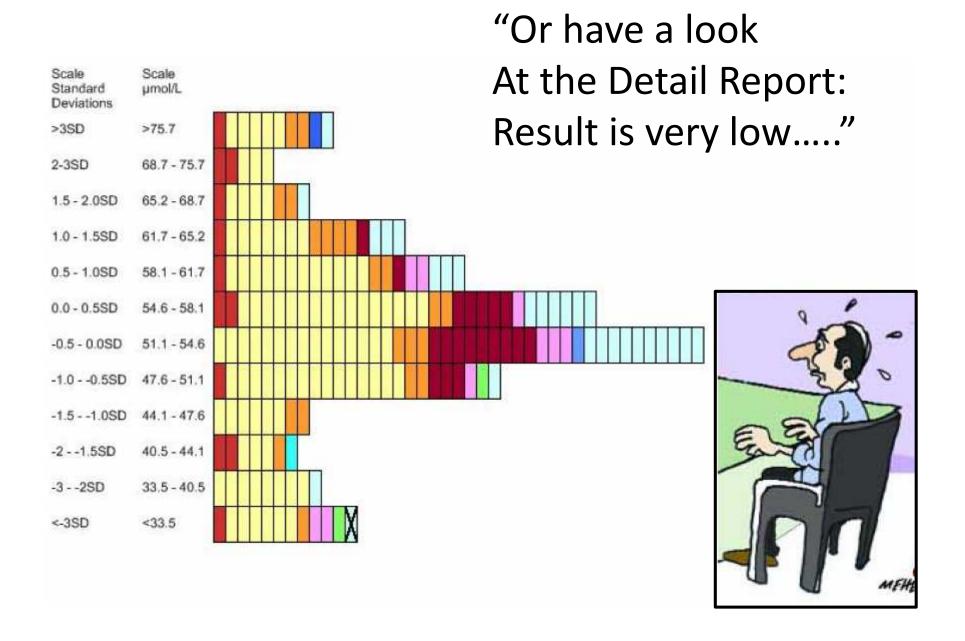


ERNDIMQA - Graphical Presentation



"Click on Graphics of e.g. Arginine You see...."



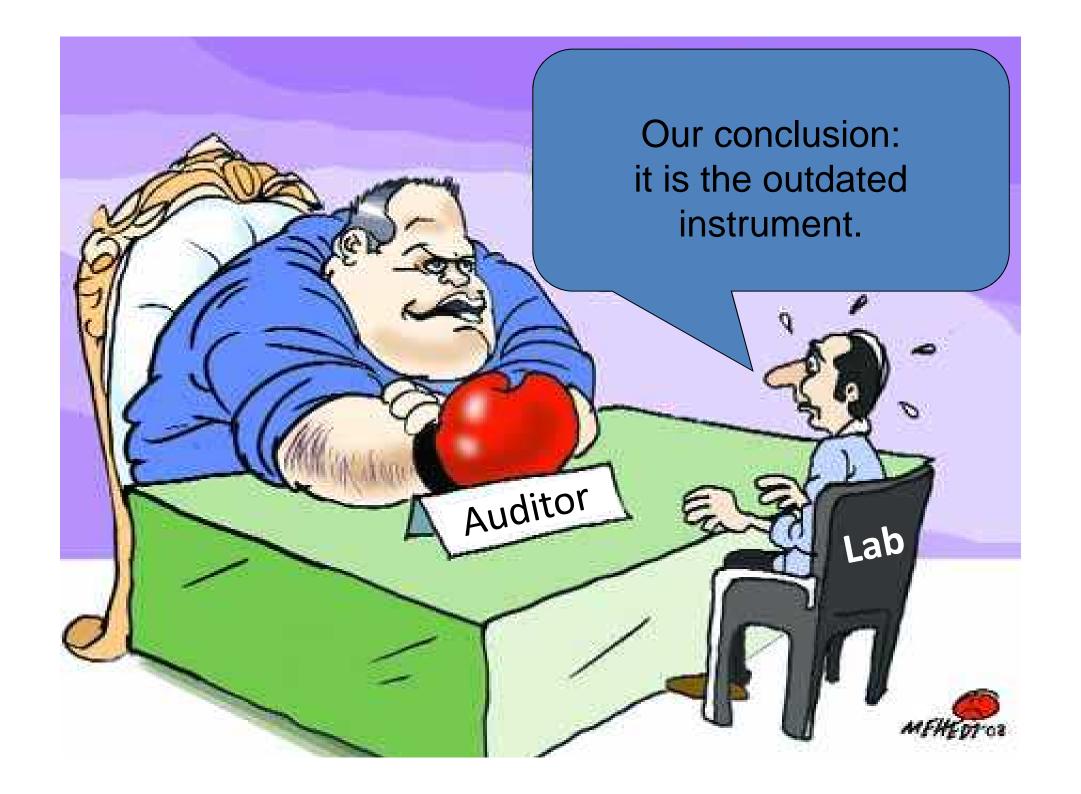


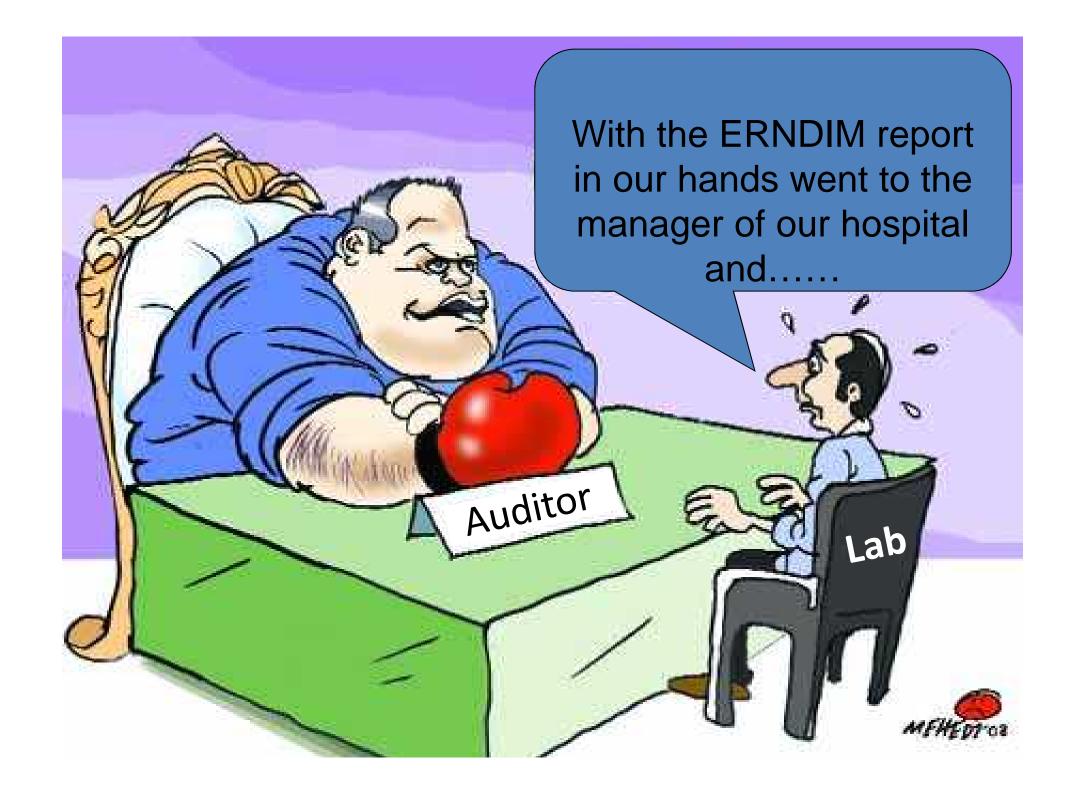
"Overview in Cycle Review report shows...."

ERNDIMQA - Cycle Review - AA

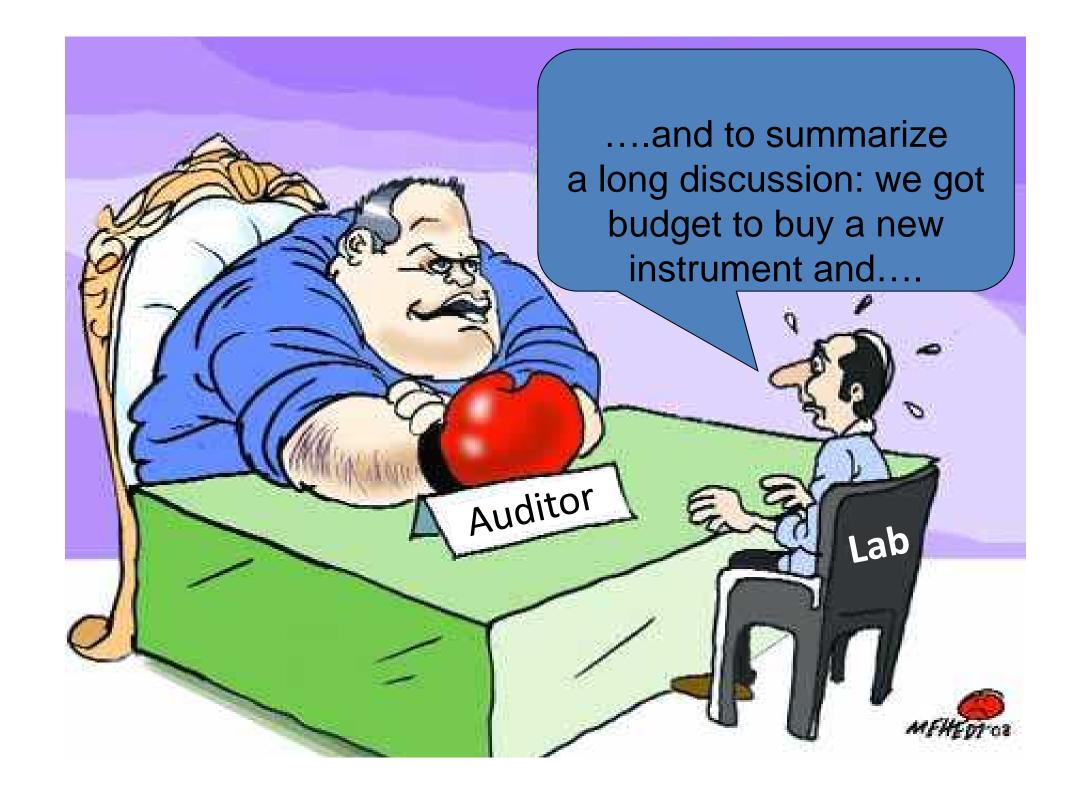
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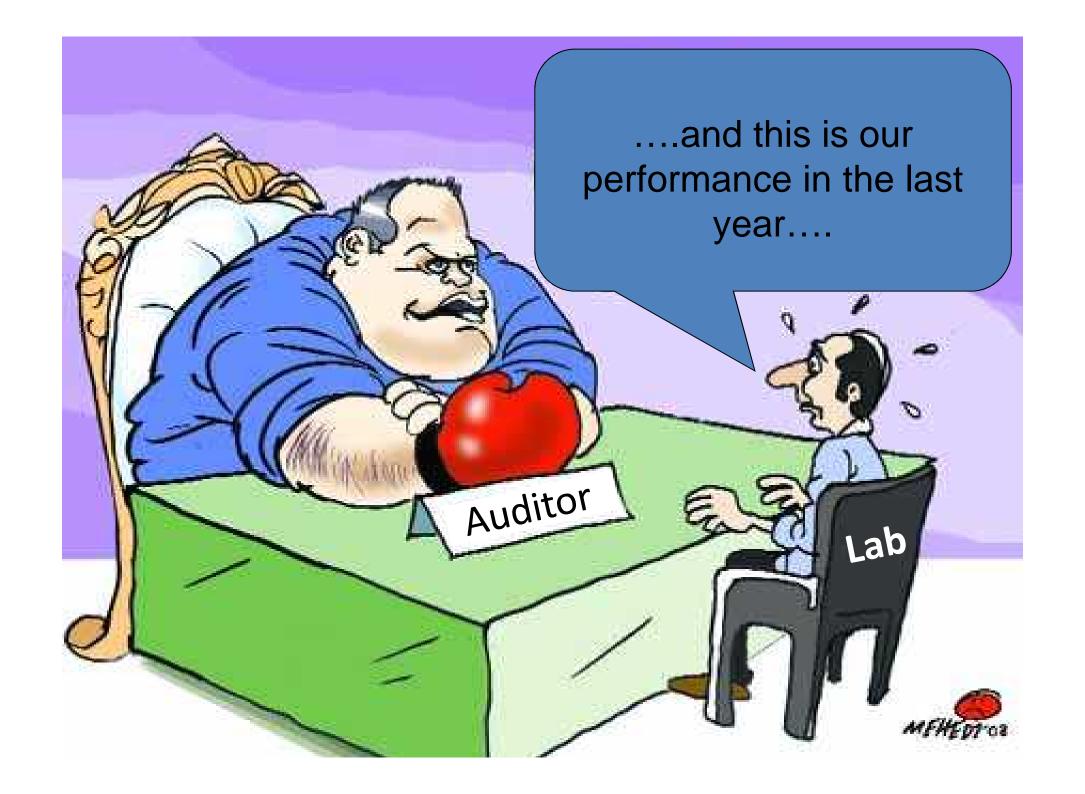
Analyte	Your Lab	Med All Labs	n	ZScore	10%	20%	30%	40%	50%	60%	70%			
2-Aminobutyric acid	25.9	23.1	194	0.8	3					4 5	6		F	
Alanine	166	183	263	1.2	3	67	5			4		L		4
Alloisoleucine		20.8	189											
<u>Arginine</u>	84.6	100	261	2.3	6	7		5					4	123
Asparagine	87.2	93.0	240	0.5			6		2	4	5 7	3		1
Aspartic Acid	89.2	85.0	252	0.4	123			5 7	6	4				
Citrulline	747	720	259	0.7	2 3	6					5	4		17
Cystine	78.2	53.0	234	5.2		3 7								1245 6
Glutamic acid	113	212	260	4.9	1345 6		2		7					
Glutamine	1260	1215	253	0.4	3				2		4	6		157
Glycine	664	720	263	1.2			5			67	4			123











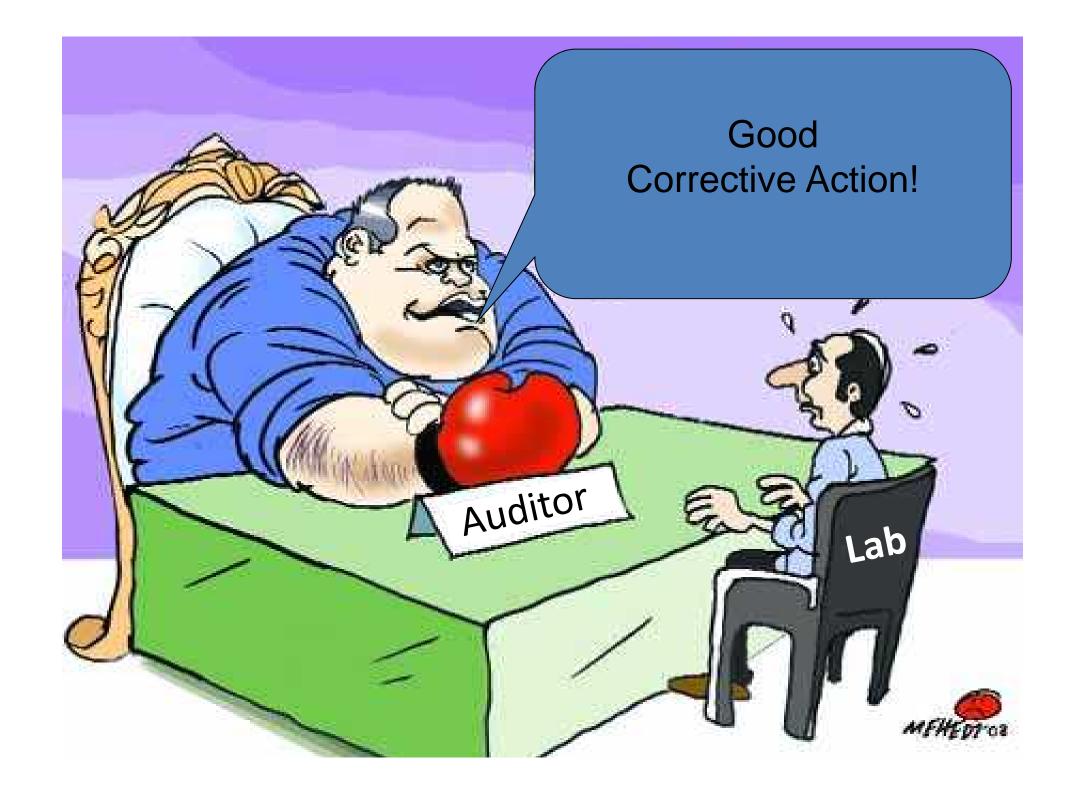
ERNDIMQA - Annual Report

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Analyte	Accuracy (mean)		Precision (CV% duplicates)		Linearity (r)		Recovery (%added analyte)		Data all labs	
	Your Lab	All labs	Your Lab	All labs	Your Lab	All labs	Your Lab	All labs	n	Interlab cv
z-Aminobutyric acid	42.5	45.8	4.2%	/.1%	0.999	0.997	90%	101%	215	13./%
Alarine	332	357	3.6%	5.2%	1.000	0.998	86%	95%	270	9.04%
Alloiscleucine	69.5	72.5	4.8%	7.0%	0.999	0.995	92%	95%	192	11.7%
Arginine	230	249	1.6%	4.4%	1.000	0.999	87%	95%	267	8.65%
Asparagine	74.4	89.0	4.3%	10.2%	0.994	0.991	77%	97%	249	19.8%
Aspattic Acid	51.0	49.3	6.9%	9.0%	0.997	0.993	73%	67%	2G0	19.3%
Citrolline	654	719	9.4%	5.2%	0.997	0.998	85%	95%	264	13.4%
Cystine	38.6	38.3	7.6%	9.0%	0.988	0.990	58%	59%	240	13.7%
Glutamic acid	124	120	12.4%	10.2%	0.984	0.987	120%	111%	269	15.3%
Glutamine	536	614	6.4%	7.1%	0.996	0.994	81%	95%	260	10.8%
Glyrine	330	350	3.9%	4.9%	0.999	n.998	91%	97%	269	8.81%
Hichdine	166	178	4.1%	5.6%	0.999	0.998	86%	91%	264	11.2%
Homozitrulline	71.0	71.2	3.4%	5.8%	0.996	0.994	88%	87%	117	15.5%
Hyd axyproline	49.0	47.6	3.2%	10.9%	0.994	0.985	95%	94%	230	13.6%
Isoleucite	130	141	4.4%	5.6%	1.000	0.999	87%	94%	269	11.7%
Leucine	405	432	2.8%	5.5%	1.000	0.999	88%	93%	2/3	10.3%
Lysine	250	251	2.0%	5.3%	1.000	0.998	89%	90%	267	8.18%
Omithine	265	256	8.2%	4.9%	0.998	0.999	97%	96%	270	10.4%
Phenylalanine	334	354	2.0%	4.9%	1.000	0.999	87%	92%	274	9.48%
Proline	327	316	2.6%	5.7%	0.998	0.995	90%	97%	255	9.54%
Seccharopine	95.0	99.8	4.7%	5.6%	0.999	0,998	91%	97%	101	11.0%
Serine	134	146	2,2%	5.5%	0.998	0.997	88%	97%	269	9.14%
Taurine	166	173	3.1%	5.5%	1.000	0.999	93%	95%	253	9.15%
Threonine	176	187	2.6%	4.5%	0.999	0.998	91%	97%	266	7.39%
Tyresine	229	247	4.5%	5.1%	0.999	0.999	86%	92%	274	9.75%
Valine	280	304	3.6%	5.0%	1.000	0.999	89%	95%	274	8.61%

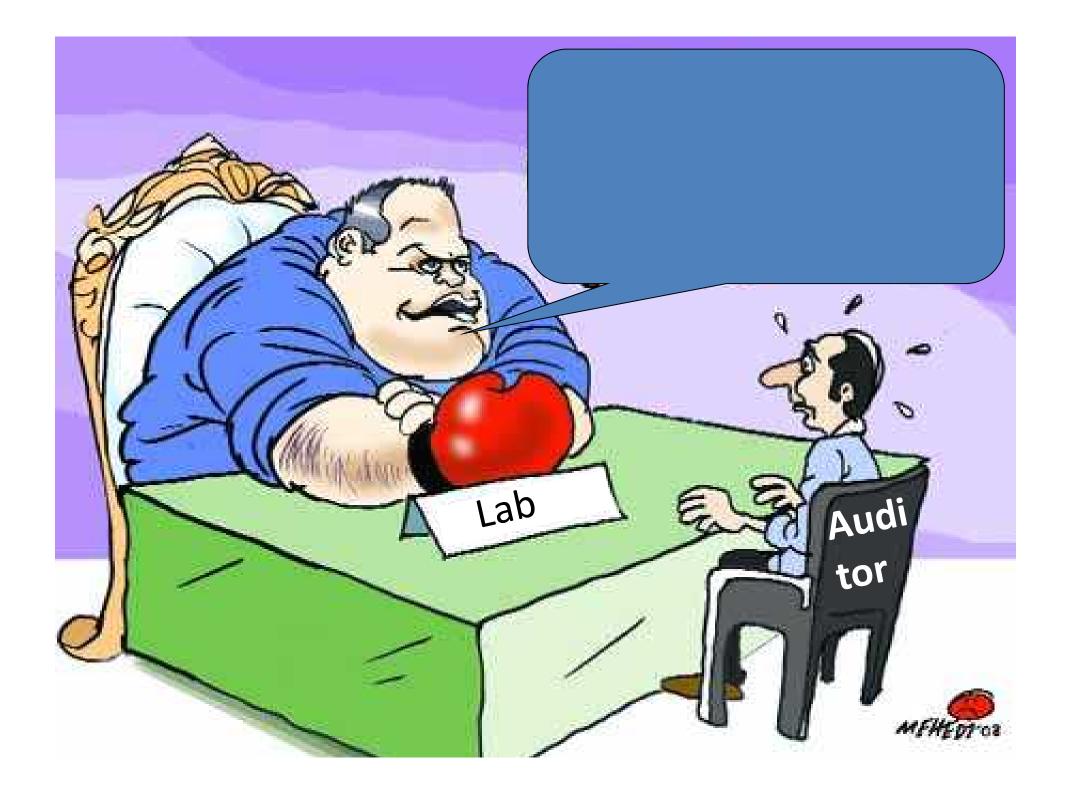
"All Green Flags!"



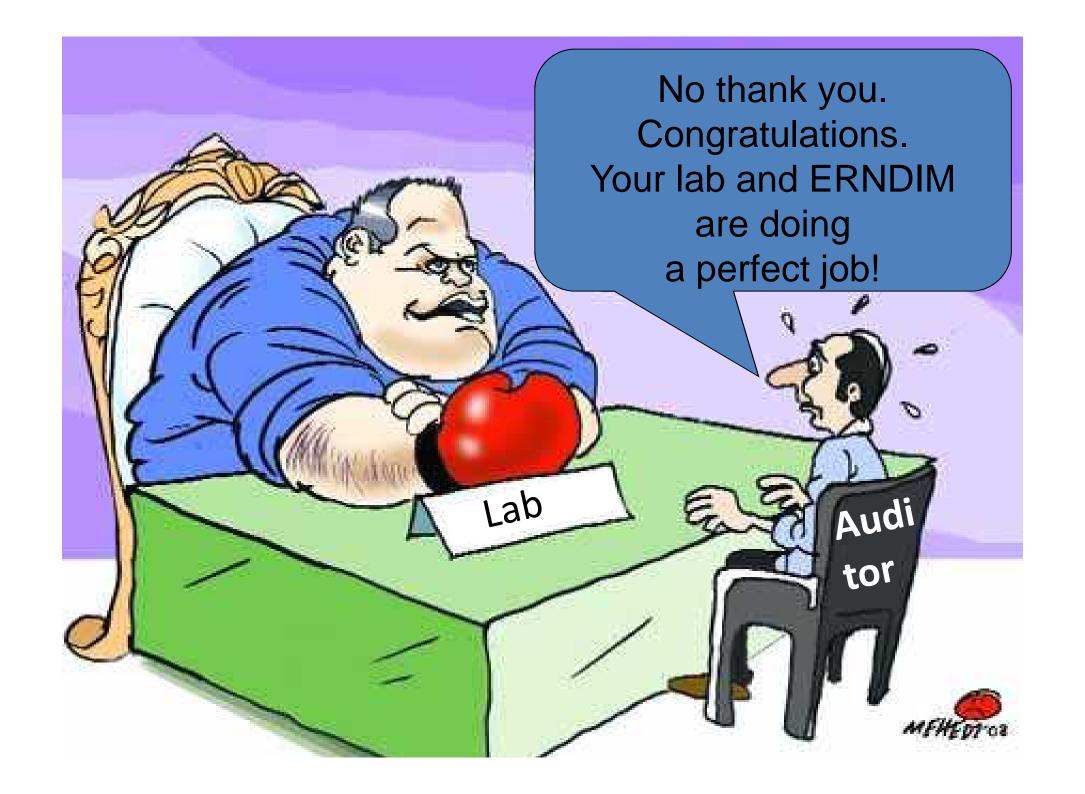


The end of the Interview.....

..... Roles change







ERNDIM Website: In Summary

