Wade Research Foundation Reports (2014) 6(2)

Properties of the 2014 Billionaire Name Peptides

David Wade, Wade Research Foundation, Monmouth Junction, N.J.

Abstract

The 2014 Forbes List of the World's Billionaires contains 1,666 personal names. A subset of 397 names (24% of the total) contain letter sequences that are entirely compatible with the International Union of Pure and Applied Chemistry-International Union of Biochemistry and Molecular Biology, Joint Commission on Biochemical Nomenclature single letter symbols for the names of amino acids (AAs). These 397 personal names, when considered as sequences of AA symbols, represent 397 novel peptides, or billionaire name peptides (BNPs), that may or may not exist in nature.

This article is an analysis of the AA sequences of the 397 BNPs to determine their lengths, AA compositions, net charges (NC) at pH 7, percentages of hydrophobic AA content, and potential for the formation of multimeric and cyclic structures via bonding involving Cysteine (C) and Selenocysteine (U) residues. BNP lengths range from 4-24 AAs, with an average length of 12 (SD = ± 3) AAs. 235 BNPs (59% of the total) have a negative NC, 84 (21%) have a positive NC, and 78 (20%) have no NC. The range of NCs varies from +6 ↔ -7, with an average NC = -1 (SD = ± 2). The content of hydrophobic AAs varies from 0-100%, with an average of 38% (SD = ± 16). When compared with published data for the frequencies of occurrence of individual AAs in proteins, the individual AA content of BNPs differs by 0.1-2.6 fold. 178 BNPs (44% of the total) contain no C or U, and, therefore, would be linear. Of the remaining BNPs, 71 (18%) contain only 1 C and 75 (19%) contain only 1 U. These peptides would be capable of forming one intermolecular bond via the side chain of C or U. 11 BNPs (3% of the total) contain 2 C, 13 (3%) contain 2 U, and 31 (8%) contain 1 C and 1 U, which would enable the formation of *intra*peptide disulfide (-S-S-), diselenide, (-Se-Se-) or selenosulfide (-Se-S-) bonds. The remaining 18 BNPs (5% of the total) contain various combinations of 3 or more C and U which would enable the formation of multiple types of cyclic structures, with both intermolecular and *intra*peptide bonding.

Potential biological, and other, properties of the 397 BNPs will be described in subsequent article.

Introduction

The concept of name peptides, and the name-to-peptide method, was introduced by Wade in 2003 [1, 2]. A name that is composed of letters of the English alphabet is considered to be a sequence of International Union of Pure and Applied Chemistry-International Union of Biochemistry and Molecular Biology, Joint Commission on Biochemical Nomenclature (IUPAC-IUBMB, JCBN) single letter symbols for amino acids (AAs). Names containing the letters B, J, O, X, and/or Z are excluded from consideration because their corresponding IUPAC-IUBMB, JCBN symbols are either ambiguous (B, X, Z) or undefined (J and O). The use of names to design peptides is controversial due to the fact that the process uses the English language, rather than nature, as the starting point. Basic Local Alignment Search Tool (BLAST) analyses have revealed that most name peptides do not occur in nature, but that substantial portions of the letter sequences of names can often be found among the single letter IUPAC-IUBMB, JCBN symbols representing the AA sequences of naturally occurring proteins. However, due to the fact that peptides are ubiquitous in nature, where they often perform functions essential to life [e.g., the peptide, insulin, is essential for carbohydrate (sugar) and lipid (fat) metabolism [3], it could reasonably be expected that every peptide produced by the name-to-peptide method would exhibit some form of biological activity. Theoretical analyses of a variety of name types (personal, corporate, etc.) have been published with the goal of identifying names that might be used to design and create novel name peptides [4-11]. The reader is referred to these articles for a detailed explanation of the name-to-peptide method. So far, only one name peptide has been produced using this method, but, upon testing, it was found to exhibit anticancer and immune stimulating properties, which indicated potential medical usefulness [4].

The 2014 Forbes List of the World's Billionaires contains 1,666 personal names. A previous article in this series described an analysis of the 2014 Forbes List to generate a subset of 397 names (24% of the total) containing letter sequences that are entirely compatible with the IUPAC-IUBMB, JCBN single letter symbols for the names of AAs [11]. When considered as sequences of AA symbols, this subset represents

© 2014 Wade Research Foundation

397 novel peptides, called billionaire name peptides (BNPs), which may or may not exist in nature. The analysis described in this article is intended to identify various features of the 397 BNPs that can be derived from their AA sequences, including peptide length, AA composition, net charge (NC) at pH 7, percent of hydrophobic AAs content, and the potential for intermolecular bonding and/or the formation of cyclic peptide structures via bonding to Cysteine (C) and/or Selenocysteine (U) residues within the peptides.

Methods

The methods used to analyze AA sequences are described in detail in previous articles of this series [1, 2, 4-11], and utilize well established chemical and physical properties of AAs [3, 12, 13].

Results

Table 1 lists the 397 BNPs in the same order that their corresponding personal names are shown in the 2014 Forbes List, and their AA compositions, lengths (i.e., number of constituent AAs; #AAs), percent hydrophobic (%H) AA residues {i.e., A, C, F, I, L, M, V [12]}, NC at pH 7, and C and U content.

BNP lengths range from 4-24 AAs, with an average length of 12 (SD = ± 3) AAs (Figure 1).

Although not shown in the table, all BNPs are assumed to be positively charged at their amino terminal ends, and negatively charged at their carboxyl terminal ends, and this assumption was included in NC calculations. 235 BNPs (59% of the total) have a negative NC, 84 (21%) have a positive NC, and 78 (20%) have no NC. The range of NCs varies from +6 ↔ -7, with an average NC = -1 (SD = ± 2).

The content of hydrophobic AAs (colored beige in the table) varies from 0-100%, with an average of 38% (SD = ± 16).

When compared with published data for the frequencies of occurrence of individual AAs in proteins [14], the individual AA content of BNPs differs by 0.1-2.6 fold (Table 2).

Analysis of the C and U content (Table 3) revealed that 178 BNPs (44% of the total) do not contain either of these residues, and, therefore, would be linear. Of the remaining BNPs, 71 (18%) contain only 1 C and 75 (19%) contain only 1 U. These BNPs would be capable of forming one intermolecular bond via the side chain of C or U. 11 BNPs (3% of the total) contain 2 C, 13 (3%) contain 2 U, and 31 (8%) contain 1 C and 1 U, which would enable the formation of *intra*peptide disulfide (-S-S-), diselenide, (-Se-Se-) or selenosulfide (-Se-S-) bonds. The remaining 18 BNPs (5% of the total) contain various combinations of 3 or more C and U which would enable the formation of multiple types of cyclic structures, with both intermolecular and *intra*peptide bonding.

Discussion

The 397 BNPs analyzed in this article represent a small sample of the universe of novel peptides that can be obtained by use of the name-to-peptide method. These particular peptides are of interest because they were derived from a list of personal names that receives substantial publicity on an annual basis. Hopefully, this factor will help to increase public awareness of both the name-to-peptide method and the field of peptide science. In addition, during this era of decreased public funding for science, publicity about the name-to-peptide method might stimulate persons with exceptional financial means to increase their contributions to scientific research [15].

Potential biological, and other, properties of the 397 BNPs will be described in subsequent articles in this series.

References (on last page)

© 2014 Wade Research Foundation

Table 1. Billionaire name peptides (BNPs), and their number of constituent amino acids (#AAs), percent hydrophobic (%H) AA content {i.e., A, C, F, I, L, M, V [12]; beige colored}, net charges (NC) at pH 7 (blue = positive; red = negative), and content of Cysteine (C) and Selenocysteine (U) residues. All peptides are positively charged at their amino terminal ends, and negatively charged at their carboxyl terminal ends (not shown).

NAME PEPTIDE	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**#AAs**	**% H**	**NC**	**C**	**U**
LarryPage	L	A	R	R	Y	P	A	G	E																9	33	**1**	0	0
LiKashing	L	I	K	A	S	H	I	N	G																9	44	**1**	0	0
CarlIcahn	C	A	R	L	I	C	A	H	N																9	55	**1**	2	0
LeeShauKee	L	E	E	S	H	A	U	K	E	E															10	20	**-4**	0	1
PhilKnight	P	H	I	L	K	N	I	G	H	T															10	30	**1**	0	0
TadashiYanai	T	A	D	A	S	H	I	Y	A	N	A	I													12	50	**-1**	0	0
GinaRinehart	G	I	N	A	R	I	N	E	H	A	R	T													12	33	**1**	0	0
MikhailFridman	M	I	K	H	A	I	L	F	R	I	D	M	A	N											14	57	**1**	0	0
MichaelDell	M	I	C	H	A	E	L	D	E	L	L														11	54	**-3**	1	0
SusanneKlatten	S	U	S	A	N	N	E	K	L	A	T	T	E	N											14	21	**-2**	0	1
LakshmiMittal	L	A	K	S	H	M	I	M	I	T	T	A	L												13	61	**1**	0	0
VladimirLisin	V	L	A	D	I	M	I	R	L	I	S	I	N												13	69	**0**	0	0
ChengYutung	C	H	E	N	G	Y	U	T	U	N	G														11	9	**-3**	1	2
PaulAllen	P	A	U	L	A	L	L	E	N																9	55	**-2**	0	1
CharlesErgen	C	H	A	R	L	E	S	E	R	G	E	N													12	25	**-1**	1	0
StefanQuandt	S	T	E	F	A	N	Q	U	A	N	D	T													12	25	**-3**	0	1
SergeDassault	S	E	R	G	E	D	A	S	S	A	U	L	T												13	23	**-3**	0	1
MaHuateng	M	A	H	U	A	T	E	N	G																9	33	**-2**	0	1
DilipShanghvi	D	I	L	I	P	S	H	A	N	G	H	V	I												13	46	**-1**	0	0
HansRausing	H	A	N	S	R	A	U	S	I	N	G														11	27	**0**	0	1
HenrySy	H	E	N	R	Y	S	Y																		7	0	**0**	0	0
GermanKhan	G	E	R	M	A	N	K	H	A	N															10	30	**1**	0	0
AnandaKrishnan	A	N	A	N	D	A	K	R	I	S	H	N	A	N											14	36	**1**	0	0
LeeKunHee	L	E	E	K	U	N	H	E	E																9	11	**-4**	0	1

© 2014 Wade Research Foundation

Table 1 (Con't.). BNPs, and their number of constituent amino acids (#AAs), percent hydrophobic (%H) AA content {i.e., A, C, F, I, L, M, V [12]; beige colored}, net charges (NC) at pH 7 (blue = positive; red = negative), and content of Cysteine (C) and Selenocysteine (U) residues. All peptides are positively charged at their amino terminal ends, and negatively charged at their carboxyl terminal ends (not shown).

NAME PEPTIDE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	#AAs	% H	NC	C	U
ShivNadar	S	H	I	V	N	A	D	A	R																9	44	**0**	0	0
MiucciaPrada	M	I	U	C	C	I	A	P	R	A	D	A													12	67	**-1**	2	1
PetrKellner	P	E	T	R	K	E	L	L	N	E	R														11	18	**0**	0	0
KlausMichaelKuehne	K	L	A	U	S	M	I	C	H	A	E	L	K	U	E	H	N	E							18	39	**-3**	1	2
SergeiGalitsky	S	E	R	G	E	I	G	A	L	I	T	S	K	Y											14	21	**0**	0	0
MarcelHerrmannTelles	M	A	R	C	E	L	H	E	R	R	M	A	N	N	T	E	L	L	E	S					20	10	**-1**	1	0
DavidTepper	D	A	V	I	D	T	E	P	P	E	R														11	27	**-3**	0	0
RichardKinder	R	I	C	H	A	R	D	K	I	N	D	E	R												13	15	**1**	1	0
TsaiEngMeng	T	S	A	I	E	N	G	M	E	N	G														11	27	**-2**	0	0
EricSchmidt	E	R	I	C	S	C	H	M	I	D	T														11	18	**-1**	2	0
AlainWertheimer	A	L	A	I	N	W	E	R	T	H	E	I	M	E	R										15	33	**-1**	0	0
GerardWertheimer	G	E	R	A	R	D	W	E	R	T	H	E	I	M	E	R									16	12	**-1**	0	0
ElaineMarshall	E	L	A	I	N	E	M	A	R	S	H	A	L	L											14	57	**-1**	0	0
LudwigMerckle	L	U	D	W	I	G	M	E	R	C	K	L	E												13	38	**-2**	1	1
PierreCastel	P	I	E	R	R	E	C	A	S	T	E	L													12	33	**-1**	1	0
DavidDuffield	D	A	V	I	D	D	U	F	F	I	E	L	D												13	54	**-6**	0	1
TsaiWanTsai	T	S	A	I	W	A	N	T	S	A	I														11	45	**0**	0	0
KlausTschira	K	L	A	U	S	T	S	C	H	I	R	A													12	42	**1**	1	1
GraemeHart	G	R	A	E	M	E	H	A	R	T															10	30	**0**	0	0
RalphLauren	R	A	L	P	H	L	A	U	R	E	N														11	36	**0**	0	1
YangHuiyan	Y	A	N	G	H	U	I	Y	A	N															10	30	**-1**	0	1
NassefSawiris	N	A	S	S	E	F	S	A	W	I	R	I	S												13	38	**0**	0	0
QuekLengChan	Q	U	E	K	L	E	N	G	C	H	A	N													12	25	**-2**	1	1
DanninеAvara	D	A	N	N	I	N	E	A	V	A	R	A													12	50	**-1**	0	0
PatrickDrahi	P	A	T	R	I	C	K	D	R	A	H	I													12	42	**2**	1	0

© 2014 Wade Research Foundation

Table 1 (Con't.). BNPs, and their number of constituent amino acids (#AAs), percent hydrophobic (%H) AA content {i.e., A, C, F, I, L, M, V [12]; beige colored}, net charges (NC) at pH 7 (blue = positive; red = negative), and content of Cysteine (C) and Selenocysteine (U) residues. All peptides are positively charged at their amino terminal ends, and negatively charged at their carboxyl terminal ends (not shown).

NAME PEPTIDE	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**#AAs**	**% H**	**NC**	**C**	**U**
RandaWilliams	R	A	N	D	A	W	I	L	L	I	A	M	S												13	69	**0**	0	0
STruettCathy	S	T	R	U	E	T	T	C	A	T	H	Y													12	17	**-1**	1	1
DavidGeffen	D	A	V	I	D	G	E	F	F	E	N														11	45	**-4**	0	0
RichardLeFrak	R	I	C	H	A	R	D	L	E	F	R	A	K												13	46	**2**	1	0
ChanLaiwa	C	H	A	N	L	A	I	W	A																9	55	**0**	1	0
FilaretGalchev	F	I	L	A	R	E	T	G	A	L	C	H	E	V											14	57	**-1**	1	0
IraRennert	I	R	A	R	E	N	N	E	R	T															10	10	**1**	0	0
IsakAndic	I	S	A	K	A	N	D	I	C																9	55	**0**	1	0
HuiKaYan	H	U	I	K	A	Y	A	N																	8	37	**0**	0	1
HuiWingMau	H	U	I	W	I	N	G	M	A	U															10	40	**-2**	0	2
SunilMittal	S	U	N	I	L	M	I	T	T	A	L														11	54	**-1**	0	1
RayLeeHunt	R	A	Y	L	E	E	H	U	N	T															10	20	**-2**	0	1
MichaelAshley	M	I	C	H	A	E	L	A	S	H	L	E	Y												13	54	**-2**	1	0
ArthurIrving	A	R	T	H	U	R	I	R	V	I	N	G													12	33	**2**	0	1
StefWertheimer	S	T	E	F	W	E	R	T	H	E	I	M	E	R											14	21	**-2**	0	0
PhilipGreen	P	H	I	L	I	P	G	R	E	E	N														11	27	**-1**	0	0
CristinaGreen	C	R	I	S	T	I	N	A	G	R	E	E	N												13	31	**0**	1	0
KenGriffin	K	E	N	G	R	I	F	F	I	N															10	40	**1**	0	0
FinnRausing	F	I	N	N	R	A	U	S	I	N	G														11	36	**0**	0	1
KirstenRausing	K	I	R	S	T	E	N	R	A	U	S	I	N	G											14	21	**1**	0	1
DavidGreen	D	A	V	I	D	G	R	E	E	N															10	30	**-3**	0	0
SteinErikHagen	S	T	E	I	N	E	R	I	K	H	A	G	E	N											14	21	**-1**	0	0
HenryKravis	H	E	N	R	Y	K	R	A	V	I	S														11	27	**2**	0	0
FrederikPaulsen	F	R	E	D	E	R	I	K	P	A	U	L	S	E	N										15	27	**-2**	0	1
ShashiRuia	S	H	A	S	H	I	R	U	I	A															10	40	**0**	0	1

© 2014 Wade Research Foundation

Table 1 (Con't.). BNPs, and their number of constituent amino acids (#AAs), percent hydrophobic (%H) AA content {i.e., A, C, F, I, L, M, V [12]; beige colored}, net charges (NC) at pH 7 (blue = positive; red = negative), and content of Cysteine (C) and Selenocysteine (U) residues. All peptides are positively charged at their amino terminal ends, and negatively charged at their carboxyl terminal ends (not shown).

NAME PEPTIDE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	#AAs	% H	NC	C	U
RaviRuia	R	A	V	I	R	U	I	A																	8	62	**1**	0	1
LaurenceGraff	L	A	U	R	E	N	C	E	G	R	A	F	F												13	46	**-1**	1	1
PaulineMacMillanKeinath	P	A	U	L	I	N	E	M	A	C	M	I	L	L	A	N	K	E	I	N	A	T	H		23	56	**-2**	1	1
WhitneyMacMillan	W	H	I	T	N	E	Y	M	A	C	M	I	L	L	A	N									16	56	**-1**	1	0
KarlWlaschek	K	A	R	L	W	L	A	S	C	H	E	K													12	42	**2**	1	0
AndrewTan	A	N	D	R	E	W	T	A	N																9	22	**-1**	0	0
MikeAdenuga	M	I	K	E	A	D	E	N	U	G	A														11	36	**-3**	0	1
DianeHendricks	D	I	A	N	E	H	E	N	D	R	I	C	K	S											14	29	**-2**	1	0
LynnSchusterman	L	Y	N	N	S	C	H	U	S	T	E	R	M	A	N										15	27	**-1**	1	1
DavidSun	D	A	V	I	D	S	U	N																	8	37	**-3**	0	1
KelcyWarren	K	E	L	C	Y	W	A	R	R	E	N														11	27	**1**	1	0
SamvelKarapetyan	S	A	M	V	E	L	K	A	R	A	P	E	T	Y	A	N									16	44	**0**	0	0
LeeShinCheng	L	E	E	S	H	I	N	C	H	E	N	G													12	25	**-3**	1	0
LiangWengen	L	I	A	N	G	W	E	N	G	E	N														11	27	**-2**	0	0
WangChuanfu	W	A	N	G	C	H	U	A	N	F	U														11	36	**-2**	1	2
WilliamDing	W	I	L	L	I	A	M	D	I	N	G														11	64	**-1**	0	0
TedLerner	T	E	D	L	E	R	N	E	R																9	11	**-2**	0	0
FriedeSpringer	F	R	I	E	D	E	S	P	R	I	N	G	E	R											14	21	**-1**	0	0
WangWenyin	W	A	N	G	W	E	N	Y	I	N															10	20	**-1**	0	0
IngvarKamprad	I	N	G	V	A	R	K	A	M	P	R	A	D												13	46	**2**	0	0
ShahidKhan	S	H	A	H	I	D	K	H	A	N															10	30	**0**	0	0
ErichKellerhals	E	R	I	C	H	K	E	L	L	E	R	H	A	L	S										15	40	**0**	1	0
RandalKirk	R	A	N	D	A	L	K	I	R	K															10	40	**3**	0	0
LarsLarsen	L	A	R	S	L	A	R	S	E	N															10	40	**1**	0	0
WangWei	W	A	N	G	W	E	I																		7	29	**-1**	0	0

© 2014 Wade Research Foundation

Table 1 (Con't.). BNPs, and their number of constituent amino acids (#AAs), percent hydrophobic (%H) AA content {i.e., A, C, F, I, L, M, V [12]; beige colored}, net charges (NC) at pH 7 (blue = positive; red = negative), and content of Cysteine (C) and Selenocysteine (U) residues. All peptides are positively charged at their amino terminal ends, and negatively charged at their carboxyl terminal ends (not shown).

NAME PEPTIDE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	#AAs	% H	NC	C	U
MarthaIngram	M	A	R	T	H	A	I	N	G	R	A	M													12	50	**2**	0	0
WalterFaria	W	A	L	T	E	R	F	A	R	I	A														11	54	**1**	0	0
PeterHargreaves	P	E	T	E	R	H	A	R	G	R	E	A	V	E	S										15	20	**-1**	0	0
MitchellRales	M	I	T	C	H	E	L	L	R	A	L	E	S												13	54	**-1**	1	0
SteveWynn	S	T	E	V	E	W	Y	N	N																9	11	**-2**	0	0
GuentherFielmann	G	U	E	N	T	H	E	R	F	I	E	L	M	A	N	N									16	31	**-3**	0	1
NathanKirsh	N	A	T	H	A	N	K	I	R	S	H														11	27	**2**	0	0
MuratUlker	M	U	R	A	T	U	L	K	E	R															10	30	**0**	0	2
VanichChaiyawan	V	A	N	I	C	H	C	H	A	I	Y	A	W	A	N										15	60	**0**	2	0
MichaelPlatt	M	I	C	H	A	E	L	P	L	A	T	T													12	58	**-1**	1	0
StevenRales	S	T	E	V	E	N	R	A	L	E	S														11	27	**-2**	0	0
DavidShaw	D	A	V	I	D	S	H	A	W																9	44	**-2**	0	0
MichaelIlitch	M	I	C	H	A	E	L	I	L	I	T	C	H												13	69	**-1**	2	0
MarianIlitch	M	A	R	I	A	N	I	L	I	T	C	H													12	67	**1**	1	0
LuGuanqiu	L	U	G	U	A	N	Q	I	U																9	33	**-3**	0	3
StewartResnick	S	T	E	W	A	R	T	R	E	S	N	I	C	K											14	14	**1**	1	0
LyndaResnick	L	Y	N	D	A	R	E	S	N	I	C	K													12	25	**0**	1	0
AndreasStruengmann	A	N	D	R	E	A	S	S	T	R	U	E	N	G	M	A	N	N							18	22	**-2**	0	1
EvanWilliams	E	V	A	N	W	I	L	L	I	A	M	S													12	67	**-1**	0	0
ChungEuiSun	C	H	U	N	G	E	U	I	S	U	N														11	18	**-4**	1	3
AndreiGuriev	A	N	D	R	E	I	G	U	R	I	E	V													12	33	**-2**	0	1
LinYulin	L	I	N	Y	U	L	I	N																	8	50	**-1**	0	1
IsraelEnglander	I	S	R	A	E	L	E	N	G	L	A	N	D	E	R										15	33	**-2**	0	0
FuLiquan	F	U	L	I	Q	U	A	N																	8	50	**-2**	0	2
MikhailGutseriev	M	I	K	H	A	I	L	G	U	T	S	E	R	I	E	V									16	44	**-1**	0	1

© 2014 Wade Research Foundation

Table 1 (Con't.). BNPs, and their number of constituent amino acids (#AAs), percent hydrophobic (%H) AA content {i.e., A, C, F, I, L, M, V [12]; beige colored}, net charges (NC) at pH 7 (blue = positive; red = negative), and content of Cysteine (C) and Selenocysteine (U) residues. All peptides are positively charged at their amino terminal ends, and negatively charged at their carboxyl terminal ends (not shown).

NAME PEPTIDE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	#AAs	% H	NC	C	U
AnttiHerlin	A	N	T	T	I	H	E	R	L	I	N														11	36	**0**	0	0
TerrencePegula	T	E	R	R	E	N	C	E	P	E	G	U	L	A											14	21	**-3**	1	1
MatthiasReimannAndersen	M	A	T	T	H	I	A	S	R	E	I	M	A	N	N	A	N	D	E	R	S	E	N		23	35	**-2**	0	0
StefanReimannAndersen	S	T	E	F	A	N	R	E	I	M	A	N	N	A	N	D	E	R	S	E	N				21	29	**-3**	0	0
RenateReimannHaas	R	E	N	A	T	E	R	E	I	M	A	N	N	H	A	A	S								17	35	**-1**	0	0
StephanSchmidheiny	S	T	E	P	H	A	N	S	C	H	M	I	D	H	E	I	N	Y							18	28	**-3**	1	0
SarikTara	S	A	R	I	K	T	A	R	A																9	44	**3**	0	0
SamuelYin	S	A	M	U	E	L	Y	I	N																9	44	**-2**	0	1
AustenCargill	A	U	S	T	E	N	C	A	R	G	I	L	L												13	46	**-1**	1	1
FrederickSmith	F	R	E	D	E	R	I	C	K	S	M	I	T	H											14	36	**0**	1	0
StanleyDruckenmiller	S	T	A	N	L	E	Y	D	R	U	C	K	E	N	M	I	L	L	E	R					20	35	**-2**	1	1
AndreEsteves	A	N	D	R	E	E	S	T	E	V	E	S													12	17	**-4**	0	0
TahaMikati	T	A	H	A	M	I	K	A	T	I															10	60	**1**	0	0
IsaacPerlmutter	I	S	A	A	C	P	E	R	L	M	U	T	T	E	R										15	40	**-1**	1	1
WangYungTsai	W	A	N	G	Y	U	N	G	T	S	A	I													12	25	**-1**	0	1
HansPeterWild	H	A	N	S	P	E	T	E	R	W	I	L	D												13	23	**-2**	0	0
FredDeLuca	F	R	E	D	D	E	L	U	C	A															10	40	**-4**	1	1
EdwardLampert	E	D	W	A	R	D	L	A	M	P	E	R	T												13	31	**-2**	0	0
MichelLeclercq	M	I	C	H	E	L	L	E	C	L	E	R	C	Q											14	57	**-2**	3	0
SamuelTakLee	S	A	M	U	E	L	T	A	K	L	E	E													12	42	**-3**	0	1
PaulRamsay	P	A	U	L	R	A	M	S	A	Y															10	50	**0**	0	1
KushalPalSingh	K	U	S	H	A	L	P	A	L	S	I	N	G	H											14	36	**0**	0	1
HarryStine	H	A	R	R	Y	S	T	I	N	E															10	20	**1**	0	0
TangYiu	T	A	N	G	Y	I	U																		7	29	**-1**	0	1
AnilAgarwal	A	N	I	L	A	G	A	R	W	A	L														11	64	**1**	0	0

© 2014 Wade Research Foundation

Table 1 (Con't.). BNPs, and their number of constituent amino acids (#AAs), percent hydrophobic (%H) AA content {i.e., A, C, F, I, L, M, V [12]; beige colored}, net charges (NC) at pH 7 (blue = positive; red = negative), and content of Cysteine (C) and Selenocysteine (U) residues. All peptides are positively charged at their amino terminal ends, and negatively charged at their carboxyl terminal ends (not shown).

NAME PEPTIDE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	#AAs	% H	NC	C	U
MichaelPieper	M	I	C	H	A	E	L	P	I	E	P	E	R												13	46	**-2**	1	0
MichaelYing	M	I	C	H	A	E	L	Y	I	N	G														11	54	**-1**	1	0
GautamAdani	G	A	U	T	A	M	A	D	A	N	I														11	54	**-2**	0	1
SaifAlGhurair	S	A	I	F	A	L	G	H	U	R	A	I	R												13	54	**1**	0	1
HuangRulun	H	U	A	N	G	R	U	L	U	N															10	20	**-2**	0	3
ErmanIlicak	E	R	M	A	N	I	L	I	C	A	K														11	64	**1**	1	0
KritRatanarak	K	R	I	T	R	A	T	A	N	A	R	A	K												13	38	**5**	0	0
CheeChenTung	C	H	E	E	C	H	E	N	T	U	N	G													12	17	**-4**	2	1
YangKai	Y	A	N	G	K	A	I																		7	43	**1**	0	0
RichardChandler	R	I	C	H	A	R	D	C	H	A	N	D	L	E	R										15	40	**0**	2	0
AndrewCherng	A	N	D	R	E	W	C	H	E	R	N	G													12	17	**-1**	1	0
PeggyCherng	P	E	G	G	Y	C	H	E	R	N	G														11	9	**-1**	1	0
MiguelKrigsner	M	I	G	U	E	L	K	R	I	G	S	N	E	R											14	29	**0**	0	1
QiuGuanghe	Q	I	U	G	U	A	N	G	H	E															10	20	**-3**	0	2
ElaineWynn	E	L	A	I	N	E	W	Y	N	N															10	30	**-2**	0	0
YeChenghai	Y	E	C	H	E	N	G	H	A	I															10	30	**-2**	1	0
HuiLinChit	H	U	I	L	I	N	C	H	I	T															10	50	**-1**	1	1
PatrickLee	P	A	T	R	I	C	K	L	E	E															10	40	**0**	1	0
DanielMate	D	A	N	I	E	L	M	A	T	E															10	50	**-3**	0	0
SeanParker	S	E	A	N	P	A	R	K	E	R															10	20	**1**	0	0
RichardRainwater	R	I	C	H	A	R	D	R	A	I	N	W	A	T	E	R									16	37	**2**	1	0
YasumitsuShigeta	Y	A	S	U	M	I	T	S	U	S	H	I	G	E	T	A									16	31	**-3**	0	2
MartinViessmann	M	A	R	T	I	N	V	I	E	S	S	M	A	N	N										15	47	**0**	0	0
TyWarner	T	Y	W	A	R	N	E	R																	8	12	**1**	0	0
CliveCalder	C	L	I	V	E	C	A	L	D	E	R														11	64	**-2**	2	0

© 2014 Wade Research Foundation

Table 1 (Con't.). BNPs, and their number of constituent amino acids (#AAs), percent hydrophobic (%H) AA content {i.e., A, C, F, I, L, M, V [12]; beige colored}, net charges (NC) at pH 7 (blue = positive; red = negative), and content of Cysteine (C) and Selenocysteine (U) residues. All peptides are positively charged at their amino terminal ends, and negatively charged at their carboxyl terminal ends (not shown).

NAME PEPTIDE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	#AAs	% H	NC	C	U
DanFriedkin	D	A	N	F	R	I	E	D	K	I	N														11	36	**-1**	0	0
WilliamFung	W	I	L	L	I	A	M	F	U	N	G														11	64	**-1**	0	1
DanGertler	D	A	N	G	E	R	T	L	E	R															10	20	**-1**	0	0
HenryHillman	H	E	N	R	Y	H	I	L	L	M	A	N													12	42	**0**	0	0
PatriciaMatte	P	A	T	R	I	C	I	A	M	A	T	T	E												13	54	**0**	1	0
SiegfriedMeister	S	I	E	G	F	R	I	E	D	M	E	I	S	T	E	R									16	31	**-3**	0	0
MichaelMilken	M	I	C	H	A	E	L	M	I	L	K	E	N												13	61	**-1**	1	0
PangKang	P	A	N	G	K	A	N	G																	8	25	**1**	0	0
PhillipRuffin	P	H	I	L	L	I	P	R	U	F	F	I	N												13	54	**0**	0	1
TeddySagi	T	E	D	D	Y	S	A	G	I																9	22	**-3**	0	0
WarrenStephens	W	A	R	R	E	N	S	T	E	P	H	E	N	S											14	7	**-1**	0	0
WilliamWrigley	W	I	L	L	I	A	M	W	R	I	G	L	E	Y											14	57	**0**	0	0
TilmanFertitta	T	I	L	M	A	N	F	E	R	T	I	T	T	A											14	50	**0**	0	0
KenFisher	K	E	N	F	I	S	H	E	R																9	22	**0**	0	0
EstherGrether	E	S	T	H	E	R	G	R	E	T	H	E	R												13	0	**-1**	0	0
SalehKamel	S	A	L	E	H	K	A	M	E	L															10	50	**-1**	0	0
KevinPlank	K	E	V	I	N	P	L	A	N	K															10	40	**1**	0	0
PeterLim	P	E	T	E	R	L	I	M																	8	37	**-1**	0	0
CaiKui	C	A	I	K	U	I																			6	67	**0**	1	1
ChenFashu	C	H	E	N	F	A	S	H	U																9	33	**-2**	1	1
ClemmieSpangler	C	L	E	M	M	I	E	S	P	A	N	G	L	E	R										15	47	**-2**	1	0
WangChangtian	W	A	N	G	C	H	A	N	G	T	I	A	N												13	38	**0**	1	0
SemahatSevimArsel	S	E	M	A	H	A	T	S	E	V	I	M	A	R	S	E	L								17	41	**-2**	0	0
NadhmiAuchi	N	A	D	H	M	I	A	U	C	H	I														11	45	**-2**	1	1
MartinHaefner	M	A	R	T	I	N	H	A	E	F	N	E	R												13	38	**0**	0	0

© 2014 Wade Research Foundation

Table 1 (Con't.). BNPs, and their number of constituent amino acids (#AAs), percent hydrophobic (%H) AA content {i.e., A, C, F, I, L, M, V [12]; beige colored}, net charges (NC) at pH 7 (blue = positive; red = negative), and content of Cysteine (C) and Selenocysteine (U) residues. All peptides are positively charged at their amino terminal ends, and negatively charged at their carboxyl terminal ends (not shown).

NAME PEPTIDE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	#AAs	% H	NC	C	U
KalanithiMaran	K	A	L	A	N	I	T	H	I	M	A	R	A	N											14	50	**2**	0	0
RichardPeery	R	I	C	H	A	R	D	P	E	E	R	Y													12	25	**0**	1	0
PeterThiel	P	E	T	E	R	T	H	I	E	L															10	20	**-2**	0	0
TedTurner	T	E	D	T	U	R	N	E	R																9	0	**-2**	0	1
NMurrayEdwards	N	M	U	R	R	A	Y	E	D	W	A	R	D	S											14	21	**-1**	0	1
DavidHains	D	A	V	I	D	H	A	I	N	S															10	50	**-2**	0	0
StephenMandel	S	T	E	P	H	E	N	M	A	N	D	E	L												13	23	**-4**	0	0
FeritFaikSahenk	F	E	R	I	T	F	A	I	K	S	A	H	E	N	K										15	33	**1**	0	0
MalvinderSingh	M	A	L	V	I	N	D	E	R	S	I	N	G	H											14	43	**-1**	0	0
ShivinderSingh	S	H	I	V	I	N	D	E	R	S	I	N	G	H											14	29	**-1**	0	0
TYTsai	T	Y	T	S	A	I																			6	33	**0**	0	0
DmitryAnanyev	D	M	I	T	R	Y	A	N	A	N	Y	E	V												13	38	**-1**	0	0
WilliamFisher	W	I	L	L	I	A	M	F	I	S	H	E	R												13	61	**0**	0	0
DmitryPumpyansky	D	M	I	T	R	Y	P	U	M	P	Y	A	N	S	K	Y									16	25	**0**	0	1
ChanchaiRuayrungruang	C	H	A	N	C	H	A	I	R	U	A	Y	R	U	N	G	R	U	A	N	G				21	33	**0**	2	3
MattWalsh	M	A	T	T	W	A	L	S	H																9	44	**0**	0	0
DanWalsh	D	A	N	W	A	L	S	H																	8	37	**-1**	0	0
DeanWhite	D	E	A	N	W	H	I	T	E																9	22	**-3**	0	0
MegWhitman	M	E	G	W	H	I	T	M	A	N															10	40	**-1**	0	0
ArneWilhelmsen	A	R	N	E	W	I	L	H	E	L	M	S	E	N											14	36	**-2**	0	0
HenrySamueli	H	E	N	R	Y	S	A	M	U	E	L	I													12	33	**-2**	0	1
WuYiling	W	U	Y	I	L	I	N	G																	8	37	**-1**	0	1
FuMeicheng	F	U	M	E	I	C	H	E	N	G															10	40	**-3**	1	1
MichaelKlein	M	I	C	H	A	E	L	K	L	E	I	N													12	58	**-1**	1	0
RichardLi	R	I	C	H	A	R	D	L	I																9	56	**1**	1	0

© 2014 Wade Research Foundation

Table 1 (Con't.). BNPs, and their number of constituent amino acids (#AAs), percent hydrophobic (%H) AA content {i.e., A, C, F, I, L, M, V [12]; beige colored}, net charges (NC) at pH 7 (blue = positive; red = negative), and content of Cysteine (C) and Selenocysteine (U) residues. All peptides are positively charged at their amino terminal ends, and negatively charged at their carboxyl terminal ends (not shown).

NAME PEPTIDE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	#AAs	% H	NC	C	U
HansMelchers	H	A	N	S	M	E	L	C	H	E	R	S													12	33	**-1**	1	0
PatStryker	P	A	T	S	T	R	Y	K	E	R															10	10	**2**	0	0
TsengShinYi	T	S	E	N	G	S	H	I	N	Y	I														11	18	**-1**	0	0
WeiYinChun	W	E	I	Y	I	N	C	H	U	N															10	30	**-2**	1	1
WeiYinHeng	W	E	I	Y	I	N	H	E	N	G															10	20	**-2**	0	0
AymanAsfari	A	Y	M	A	N	A	S	F	A	R	I														11	64	**1**	0	0
SunaKirac	S	U	N	A	K	I	R	A	C																9	33	**1**	1	1
MarcLadreitdeLacharriere	M	A	R	C	L	A	D	R	E	I	T	D	E	L	A	C	H	A	R	R	I	E	R	E	24	46	**-1**	2	0
LiShufu	L	I	S	H	U	F	U																		7	43	**-2**	0	2
StewartRahr	S	T	E	W	A	R	T	R	A	H	R														11	18	**2**	0	0
KavitarkRamShriram	K	A	V	I	T	A	R	K	R	A	M	S	H	R	I	R	A	M							18	39	**6**	0	0
Tahir	T	A	H	I	R																				5	40	**1**	0	0
CheFengsheng	C	H	E	F	E	N	G	S	H	E	N	G													12	17	**-3**	1	0
ChuLamYiu	C	H	U	L	A	M	Y	I	U																9	56	**-2**	1	2
KennethFeld	K	E	N	N	E	T	H	F	E	L	D														11	18	**-3**	0	0
SusanHirtHagen	S	U	S	A	N	H	I	R	T	H	A	G	E	N											14	21	**-1**	0	1
GuentherLehmann	G	U	E	N	T	H	E	R	L	E	H	M	A	N	N										15	20	**-3**	0	1
GaryMagness	G	A	R	Y	M	A	G	N	E	S	S														11	27	**0**	0	0
CraigMcCaw	C	R	A	I	G	M	C	C	A	W															10	70	**1**	3	0
YuriMilner	Y	U	R	I	M	I	L	N	E	R															10	40	**0**	0	1
RaviPillai	R	A	V	I	P	I	L	L	A	I															10	80	**1**	0	0
GilShwed	G	I	L	S	H	W	E	D																	8	25	**-2**	0	0
TsaiChengda	T	S	A	I	C	H	E	N	G	D	A														11	36	**-2**	1	0
SunnyVarkey	S	U	N	N	Y	V	A	R	K	E	Y														11	18	**0**	0	1
WuGuangming	W	U	G	U	A	N	G	M	I	N	G														11	27	**-2**	0	2

© 2014 Wade Research Foundation

Table 1 (Con't.). BNPs, and their number of constituent amino acids (#AAs), percent hydrophobic (%H) AA content {i.e., A, C, F, I, L, M, V [12]; beige colored}, net charges (NC) at pH 7 (blue = positive; red = negative), and content of Cysteine (C) and Selenocysteine (U) residues. All peptides are positively charged at their amino terminal ends, and negatively charged at their carboxyl terminal ends (not shown).

NAME PEPTIDE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	#AAs	% H	NC	C	U
MAYusuffAli	M	A	Y	U	S	U	F	F	A	L	I														11	64	**-2**	0	2
DavidNahmad	D	A	V	I	D	N	A	H	M	A	D														11	54	**-3**	0	0
HuangLi	H	U	A	N	G	L	I																		7	43	**-1**	0	1
HuangWei	H	U	A	N	G	W	E	I																	8	25	**-2**	0	1
MarcLasry	M	A	R	C	L	A	S	R	Y																9	55	**2**	1	0
LeeMyungHee	L	E	E	M	Y	U	N	G	H	E	E														11	18	**-5**	0	1
NRNarayanaMurthy	N	R	N	A	R	A	Y	A	N	A	M	U	R	T	H	Y									16	31	**2**	0	1
KatsumiTada	K	A	T	S	U	M	I	T	A	D	A														11	45	**-1**	0	1
GavrilYushvaev	G	A	V	R	I	L	Y	U	S	H	V	A	E	V											14	50	**-1**	0	1
VladimirKim	V	L	A	D	I	M	I	R	K	I	M														11	73	**1**	0	0
RayDavis	R	A	Y	D	A	V	I	S																	8	50	**0**	0	0
AndreaDellaValle	A	N	D	R	E	A	D	E	L	L	A	V	A	L	L	E									16	56	**-4**	0	0
RichardElman	R	I	C	H	A	R	D	E	L	M	A	N													12	50	**0**	1	0
GuWei	G	U	W	E	I																				5	20	**-2**	0	1
YuriGushchin	Y	U	R	I	G	U	S	H	C	H	I	N													12	25	**-1**	1	2
AchmadHamami	A	C	H	M	A	D	H	A	M	A	M	I													12	75	**-1**	1	0
PierrePapillaud	P	I	E	R	R	E	P	A	P	I	L	L	A	U	D										15	40	**-2**	0	1
PatrickRyan	P	A	T	R	I	C	K	R	Y	A	N														11	36	**3**	1	0
ThaksinShinawatra	T	H	A	K	S	I	N	S	H	I	N	A	W	A	T	R	A								17	35	**2**	0	0
VincentTan	V	I	N	C	E	N	T	T	A	N															10	40	**-1**	1	0
MehmetSinanTara	M	E	H	M	E	T	S	I	N	A	N	T	A	R	A										15	40	**-1**	0	0
TsaiMingKai	T	S	A	I	M	I	N	G	K	A	I														11	54	**1**	0	0
CesarMataPires	C	E	S	A	R	M	A	T	A	P	I	R	E	S											14	43	**0**	1	0
ChangYungFa	C	H	A	N	G	Y	U	N	G	F	A														11	36	**-1**	1	1
ChenYungTai	C	H	E	N	Y	U	N	G	T	A	I														11	27	**-2**	1	1

© 2014 Wade Research Foundation

Table 1 (Con't.). BNPs, and their number of constituent amino acids (#AAs), percent hydrophobic (%H) AA content {i.e., A, C, F, I, L, M, V [12]; beige colored}, net charges (NC) at pH 7 (blue = positive; red = negative), and content of Cysteine (C) and Selenocysteine (U) residues. All peptides are positively charged at their amino terminal ends, and negatively charged at their carboxyl terminal ends (not shown).

NAME PEPTIDE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	#AAs	% H	NC	C	U
MuraliDivi	M	U	R	A	L	I	D	I	V	I															10	70	**-1**	0	1
SaadHariri	S	A	A	D	H	A	R	I	R	I															10	50	**1**	0	0
RichardHayne	R	I	C	H	A	R	D	H	A	Y	N	E													12	33	**0**	1	0
HuangShihTsai	H	U	A	N	G	S	H	I	H	T	S	A	I												13	31	**-1**	0	1
MehmetEminKaramehmet	M	E	H	M	E	T	E	M	I	N	K	A	R	A	M	E	H	M	E	T					20	40	**-3**	0	0
PaulSinger	P	A	U	L	S	I	N	G	E	R															10	30	**-1**	0	1
MarkStevens	M	A	R	K	S	T	E	V	E	N	S														11	27	**0**	0	0
DanWilks	D	A	N	W	I	L	K	S																	8	37	**0**	0	0
FarrisWilks	F	A	R	R	I	S	W	I	L	K	S														11	45	**3**	0	0
WilliamAckman	W	I	L	L	I	A	M	A	C	K	M	A	N												13	77	**1**	1	0
SergeiKatsiev	S	E	R	G	E	I	K	A	T	S	I	E	V												13	31	**-1**	0	0
RichardScaife	R	I	C	H	A	R	D	S	C	A	I	F	E												13	54	**0**	2	0
WilmaTisch	W	I	L	M	A	T	I	S	C	H															10	60	**0**	1	0
LinaMariaAguiar	L	I	N	A	M	A	R	I	A	A	G	U	I	A	R										15	67	**1**	0	1
EdmundAnsin	E	D	M	U	N	D	A	N	S	I	N														11	27	**-4**	0	1
ClementFayat	C	L	E	M	E	N	T	F	A	Y	A	T													12	50	**-2**	1	0
AlanGerry	A	L	A	N	G	E	R	R	Y																9	33	**1**	0	0
PeterGilgan	P	E	T	E	R	G	I	L	G	A	N														11	27	**-1**	0	0
DmitryKamenshchik	D	M	I	T	R	Y	K	A	M	E	N	S	H	C	H	I	K								17	35	**1**	1	0
MariusNacht	M	A	R	I	U	S	N	A	C	H	T														11	45	**0**	1	1
NandanNilekani	N	A	N	D	A	N	N	I	L	E	K	A	N	I											14	43	**-1**	0	0
HamdiUlukaya	H	A	M	D	I	U	L	U	K	A	Y	A													12	50	**-2**	0	2
PeterUnger	P	E	T	E	R	U	N	G	E	R															10	0	**-2**	0	1
DavidWalentas	D	A	V	I	D	W	A	L	E	N	T	A	S												13	46	**-3**	0	0
LuisEnriqueYarurRey	L	U	I	S	E	N	R	I	Q	U	E	Y	A	R	U	R	R	E	Y						19	21	**-2**	0	3

© 2014 Wade Research Foundation

Table 1 (Con't.). BNPs, and their number of constituent amino acids (#AAs), percent hydrophobic (%H) AA content {i.e., A, C, F, I, L, M, V [12]; beige colored}, net charges (NC) at pH 7 (blue = positive; red = negative), and content of Cysteine (C) and Selenocysteine (U) residues. All peptides are positively charged at their amino terminal ends, and negatively charged at their carboxyl terminal ends (not shown).

NAME PEPTIDE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	#AAs	% H	NC	C	U
RichardYuengling	R	I	C	H	A	R	D	Y	U	E	N	G	L	I	N	G									16	31	**-1**	1	1
AnneGittinger	A	N	N	E	G	I	T	T	I	N	G	E	R												13	23	**-1**	0	0
LeeHwaKyung	L	E	E	H	W	A	K	Y	U	N	G														11	18	**-2**	0	1
LinLi	L	I	N	L	I																				5	80	**0**	1	1
HenrySwieca	H	E	N	R	Y	S	W	I	E	C	A														11	27	**-1**	1	0
ChuMangYee	C	H	U	M	A	N	G	Y	E	E															10	30	**-3**	1	1
Ciputra	C	I	P	U	T	R	A																		7	43	**0**	1	1
FrankFertitta	F	R	A	N	K	F	E	R	T	I	T	T	A												13	38	**2**	0	0
WalterFrey	W	A	L	T	E	R	F	R	E	Y															10	30	**0**	0	0
AllanGray	A	L	L	A	N	G	R	A	Y																9	55	**1**	0	0
PerennaKei	P	E	R	E	N	N	A	K	E	I															10	20	**-1**	0	0
SidneyKimmel	S	I	D	N	E	Y	K	I	M	M	E	L													12	42	**-2**	0	0
LeeManTat	L	E	E	M	A	N	T	A	T																9	44	**-2**	0	0
LevLeviev	L	E	V	L	E	V	I	E	V																9	67	**-3**	0	0
MichaelPrice	M	I	C	H	A	E	L	P	R	I	C	E													12	58	**-1**	2	0
StephenSaad	S	T	E	P	H	E	N	S	A	A	D														11	18	**-3**	0	0
LilySafra	L	I	L	Y	S	A	F	R	A																9	67	**1**	0	0
SamihSawiris	S	A	M	I	H	S	A	W	I	R	I	S													12	50	**1**	0	0
ShaulShani	S	H	A	U	L	S	H	A	N	I															10	40	**-1**	0	1
PeterSperling	P	E	T	E	R	S	P	E	R	L	I	N	G												13	15	**-1**	0	0
EdwardStack	E	D	W	A	R	D	S	T	A	C	K														11	27	**-1**	1	0
SunPingfan	S	U	N	P	I	N	G	F	A	N															10	30	**-1**	0	1
AlainTaravella	A	L	A	I	N	T	A	R	A	V	E	L	L	A											14	71	**0**	0	0
LilianWerninghaus	L	I	L	I	A	N	W	E	R	N	I	N	G	H	A	U	S								17	41	**-1**	0	1
AshwinDani	A	S	H	W	I	N	D	A	N	I															10	40	**-1**	0	0

© 2014 Wade Research Foundation

Table 1 (Con't.). BNPs, and their number of constituent amino acids (#AAs), percent hydrophobic (%H) AA content {i.e., A, C, F, I, L, M, V [12]; beige colored}, net charges (NC) at pH 7 (blue = positive; red = negative), and content of Cysteine (C) and Selenocysteine (U) residues. All peptides are positively charged at their amino terminal ends, and negatively charged at their carboxyl terminal ends (not shown).

NAME PEPTIDE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	#AAs	% H	NC	C	U
DavidHarding	D	A	V	I	D	H	A	R	D	I	N	G													12	42	**-2**	0	0
HuangYi	H	U	A	N	G	Y	I																		7	29	**-1**	0	1
SethKlarman	S	E	T	H	K	L	A	R	M	A	N														11	36	**1**	0	0
AllanSlaight	A	L	L	A	N	S	L	A	I	G	H	T													12	58	**0**	0	0
LiaMariaAguiar	L	I	A	M	A	R	I	A	A	G	U	I	A	R											14	71	**1**	0	1
SteveCase	S	T	E	V	E	C	A	S	E																9	22	**-3**	1	0
ClaudeDauphin	C	L	A	U	D	E	D	A	U	P	H	I	N												13	38	**-5**	1	2
SuatGunsel	S	U	A	T	G	U	N	S	E	L															10	20	**-3**	0	2
AymanHariri	A	Y	M	A	N	H	A	R	I	R	I														11	54	**2**	0	0
FahdHariri	F	A	H	D	H	A	R	I	R	I															10	50	**1**	0	0
GerryHarvey	G	E	R	R	Y	H	A	R	V	E	Y														11	9	**1**	0	0
HuangWenTsai	H	U	A	N	G	W	E	N	T	S	A	I													12	25	**-2**	0	1
MichaelKrasny	M	I	C	H	A	E	L	K	R	A	S	N	Y												13	46	**1**	1	0
LiLi	L	I	L	I																					4	100	**0**	0	0
WilliamMacaulay	W	I	L	L	I	A	M	M	A	C	A	U	L	A	Y										15	73	**-1**	1	1
GillesMartin	G	I	L	L	E	S	M	A	R	T	I	N													12	42	**0**	0	0
NikitaMishin	N	I	K	I	T	A	M	I	S	H	I	N													12	50	**1**	0	0
NanCunhui	N	A	N	C	U	N	H	U	I																9	33	**-2**	1	2
DanSnyder	D	A	N	S	N	Y	D	E	R																9	11	**-2**	0	0
TianMing	T	I	A	N	M	I	N	G																	8	37	**0**	0	0
LangWalker	L	A	N	G	W	A	L	K	E	R															10	40	**1**	0	0
DaisyIgel	D	A	I	S	Y	I	G	E	L																9	40	**-2**	0	0
DannyTanCheeSing	D	A	N	N	Y	T	A	N	C	H	E	E	S	I	N	G									16	44	**-3**	1	0
YeCheng	Y	E	C	H	E	N	G																		7	14	**-2**	1	0
MarcelAdams	M	A	R	C	E	L	A	D	A	M	S														11	54	**-1**	1	0

© 2014 Wade Research Foundation

Table 1 (Con't.). BNPs, and their number of constituent amino acids (#AAs), percent hydrophobic (%H) AA content {i.e., A, C, F, I, L, M, V [12]; beige colored}, net charges (NC) at pH 7 (blue = positive; red = negative), and content of Cysteine (C) and Selenocysteine (U) residues. All peptides are positively charged at their amino terminal ends, and negatively charged at their carboxyl terminal ends (not shown).

NAME PEPTIDE	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**#AAs**	**% H**	**NC**	**C**	**U**
AhmetCalik	A	H	M	E	T	C	A	L	I	K															10	60	**0**	1	0
HenryEngelhardt	H	E	N	R	Y	E	N	G	E	L	H	A	R	D	T										15	13	**-2**	0	0
FangWei	F	A	N	G	W	E	I																		7	43	**-1**	0	0
YusufHamied	Y	U	S	U	F	H	A	M	I	E	D														11	36	**-4**	0	2
IlkkaHerlin	I	L	K	K	A	H	E	R	L	I	N														11	45	**2**	0	0
NiklasHerlin	N	I	K	L	A	S	H	E	R	L	I	N													12	42	**1**	0	0
DanielHirschfeld	D	A	N	I	E	L	H	I	R	S	C	H	F	E	L	D									16	44	**-3**	1	0
RayIrani	R	A	Y	I	R	A	N	I																	8	50	**2**	0	0
IsaacLarian	I	S	A	A	C	L	A	R	I	A	N														11	73	**1**	1	0
AlfredMann	A	L	F	R	E	D	M	A	N	N															10	50	**-1**	0	0
LachhmanDasMittal	L	A	C	H	H	M	A	N	D	A	S	M	I	T	T	A	L								17	59	**-1**	1	0
CharlesMunger	C	H	A	R	L	E	S	M	U	N	G	E	R												13	31	**-1**	1	1
MarkPincus	M	A	R	K	P	I	N	C	U	S															10	40	**1**	1	1
SudhirRuparelia	S	U	D	H	I	R	R	U	P	A	R	E	L	I	A										15	33	**-1**	0	2
AiratShaimiev	A	I	R	A	T	S	H	A	I	M	I	E	V												13	61	**0**	0	0
RadikShaimiev	R	A	D	I	K	S	H	A	I	M	I	E	V												13	54	**0**	0	0
EvgenyEugeneShvidler	E	V	G	E	N	Y	E	U	G	E	N	E	S	H	V	I	D	L	E	R					20	20	**-7**	0	1
MichaelSteinhardt	M	I	C	H	A	E	L	S	T	E	I	N	H	A	R	D	T								17	35	**-2**	1	0
RustemSulteev	R	U	S	T	E	M	S	U	L	T	E	E	V												13	15	**-4**	0	2
CheungYan	C	H	E	U	N	G	Y	A	N																9	22	**-2**	1	1
KDinesh	K	D	I	N	E	S	H																		7	14	**-1**	0	0
VikramLal	V	I	K	R	A	M	L	A	L																9	78	**2**	0	0
LiuMingChung	L	I	U	M	I	N	G	C	H	U	N	G													12	42	**-2**	1	2
AlanRydge	A	L	A	N	R	Y	D	G	E																9	33	**-1**	0	0
KRaiSahi	K	R	A	I	S	A	H	I																	8	50	**2**	0	0

© 2014 Wade Research Foundation

Table 1 (Con't.). BNPs, and their number of constituent amino acids (#AAs), percent hydrophobic (%H) AA content {i.e., A, C, F, I, L, M, V [12]; beige colored}, net charges (NC) at pH 7 (blue = positive; red = negative), and content of Cysteine (C) and Selenocysteine (U) residues. All peptides are positively charged at their amino terminal ends, and negatively charged at their carboxyl terminal ends (not shown).

NAME PEPTIDE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	#AAs	% H	NC	C	U
WangLaichun	W	A	N	G	L	A	I	C	H	U	N														11	45	**-1**	1	1
WangLaisheng	W	A	N	G	L	A	I	S	H	E	N	G													12	33	**-1**	0	0
AnKang	A	N	K	A	N	G																			6	33	**1**	0	0
InaChan	I	N	A	C	H	A	N																		7	57	**0**	1	0
FredChang	F	R	E	D	C	H	A	N	G																9	33	**-1**	1	0
RichardChang	R	I	C	H	A	R	D	C	H	A	N	G													12	42	**1**	2	0
FengHailiang	F	E	N	G	H	A	I	L	I	A	N	G													12	50	**-1**	0	0
FuKwan	F	U	K	W	A	N																			6	33	**0**	0	1
TSKalyanaraman	T	S	K	A	L	Y	A	N	A	R	A	M	A	N											14	50	**2**	0	0
RyanKavanaugh	R	Y	A	N	K	A	V	A	N	A	U	G	H												13	38	**1**	0	1
GrahamKirkham	G	R	A	H	A	M	K	I	R	K	H	A	M												13	46	**4**	0	0
LiDenghai	L	I	D	E	N	G	H	A	I																9	44	**-2**	0	0
LinMingHsiung	L	I	N	M	I	N	G	H	S	I	U	N	G												13	38	**-1**	0	1
MichaelLynch	M	I	C	H	A	E	L	L	Y	N	C	H													12	58	**-1**	2	0
AndreaReimannCiardelli	A	N	D	R	E	A	R	E	I	M	A	N	N	C	I	A	R	D	E	L	L	I			22	50	**-2**	1	0
VivekChaandSehgal	V	I	V	E	K	C	H	A	A	N	D	S	E	H	G	A	L								17	47	**-2**	1	0
SergeiTsikalyuk	S	E	R	G	E	I	T	S	I	K	A	L	Y	U	K										15	27	**0**	0	1
KennethTuchman	K	E	N	N	E	T	H	T	U	C	H	M	A	N											14	21	**-2**	1	1
PavelTykac	P	A	V	E	L	T	Y	K	A	C															10	50	**0**	1	0
MuratVargi	M	U	R	A	T	V	A	R	G	I															10	50	**1**	0	1
WangMuqing	W	A	N	G	M	U	Q	I	N	G															10	30	**-1**	0	1
WuChungYi	W	U	C	H	U	N	G	Y	I																9	22	**-2**	1	2
YangKeng	Y	A	N	G	K	E	N	G																	8	12	**0**	0	0

© 2014 Wade Research Foundation

Figure 1. Lengths of BNPs in terms of the number of constituent AAs. Peptide lengths range from 4-24 AAs, with a median length of 11 AAs, and an average (± SD) length of 12 (± 3) AAs.

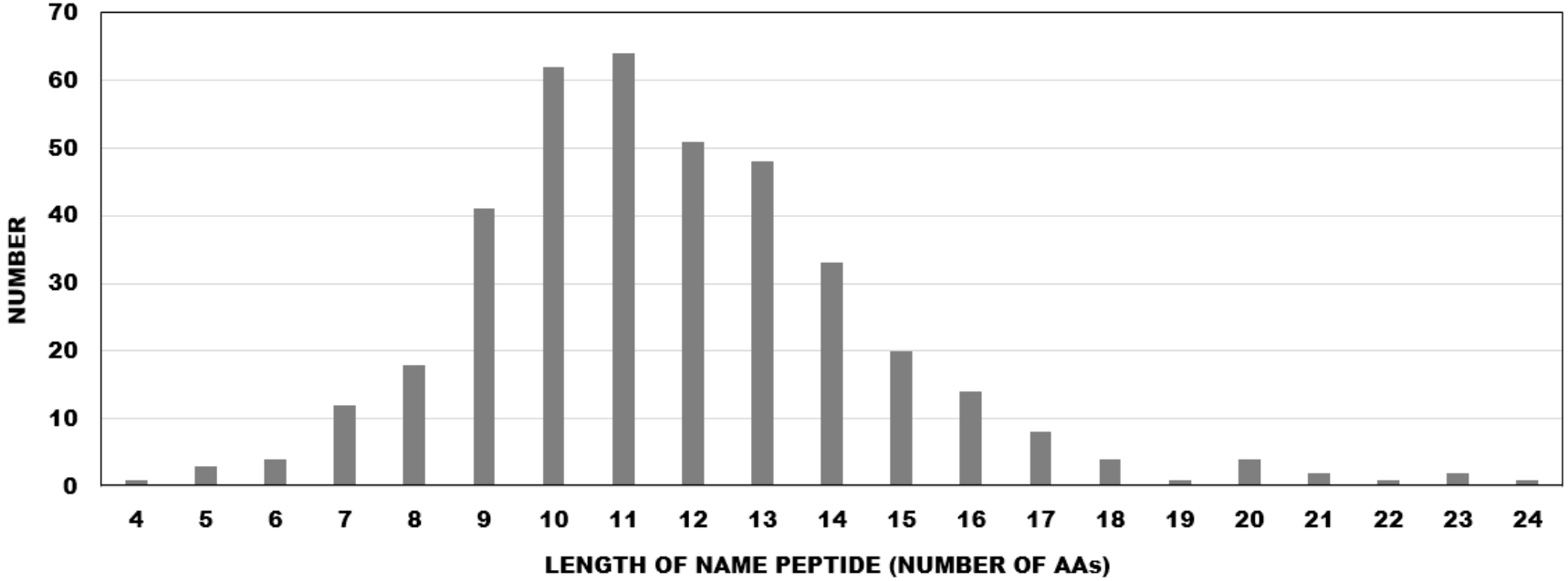

Table 2. AA composition of the 397 BNPs, and of natural proteins [14]. Note: ND = no data; NA = not applicable.

		A	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**K**	**L**	**M**	**N**	**P**	**Q**	**R**	**S**	**T**	**U**	**V**	**W**	**Y**
BNP	Number	627	147	152	475	62	179	263	458	121	283	182	429	67	9	367	235	208	168	66	78	110
	% of total	13.4	3.1	3.3	10.2	1.3	3.8	5.6	9.8	2.6	6.1	3.9	9.2	1.4	0.2	7.9	5.0	4.5	3.6	1.4	1.7	2.4
Proteins	% of total	7.7	1.2	5.3	6.9	4.1	6.8	2.0	6.5	6.0	9.8	2.3	4.2	4.6	3.4	5.4	6.8	5.2	ND	6.9	1.1	3.3
Fold Difference (% BNP/% Proteins)		1.7	2.6	0.6	1.5	0.3	0.6	2.8	1.5	0.4	0.6	1.7	2.2	0.3	0.1	1.5	0.7	0.9	NA	0.2	1.5	0.7

© 2014 Wade Research Foundation

Table 3. The content of Cysteine (C) and Selenocysteine (U) residues in the 397 BNPs, and the potential for the formation intermolecular and *intra*peptide (cyclic) structures.

Possible Bonds	None (Linear)	1 Intermolecular		*Intra*peptide (Cyclic)		
AA Types	No C/U	1C	1U	2C	2U	1C & 1U
Number	178 (44%)	71 (18%)	75 (19%)	11 (3%)	13 (3%)	31 (8%)
Possible Bonds	1 Intermolecular & 1 *Intra*peptide (Cyclic)				Multiple Combinations	
AA Types	3C	3U	2C & 1U	1C & 2U	1C & 3U	2C & 3U
Number	2 (0.5%)	3 (0.7%)	2 (0.5%)	9 (2%)	1 (0.2%)	1 (0.2%)

References

1. Wade D. The name game: use of words composed of letters of the English alphabet as a source of novel bioactive peptides. Chemistry Preprint Archive (2003) 1: 159-170. (http://www.sciencedirect.com/preprintarchive)
2. Wade D, and Wade S. The name game: use of words composed of letters of the English alphabet as a source of novel bioactive peptides. Biopolymers Peptide Science (2003) 71: 322 (abstract P082).
3. Nelson, D.L., and Cox, M.M., Lehninger Principles of Biochemistry, 5th edition, W.H. Freeman and Co., New York, 2008, pp. 71-84, 92-98, 100-102, 113-125, 129, 141-142, 606-608, 929-930.
4. Wade, D., Yang, D., and Lea, M.A. Biological and structural properties of COLINPOWELL, a synthetic peptide amide. Wade Res. Found. Rep. (2004) 1: 2-35. (http://wade-research.mynetworksolutions.com/images/WRF_Reports_2004_1_1_.pdf)
5. Wade, D. Peptides MICROSOFT, GOOGLE, YAHOO, COCACOLA and PEPSICOLA. Wade Res. Found. Rep. (2007) 4 (1): 1-16. (http://wade-research.mynetworksolutions.com/images/WRF_Reports_2007_4_1_.pdf)
6. Wade, D. The tetragrammaton peptides, YHWH and YHVH. Wade Res. Found. Rep. (2007) 4 (2): 1-6. (http://wade-research.mynetworksolutions.com/images/WRF_Reports_2007_4_2_.pdf)
7. Wade, D. The PRINCETON peptide. Wade Res. Found. Rep. (2007) 4 (4): 1-8. (http://wade-research.mynetworksolutions.com/images/WRF_Reports_2007_4_4_.pdf)
8. Wade, D. The KAROLINSKA peptide. Wade Res. Found. Rep. (2007) 4 (5): 1-7. (http://wade-research.mynetworksolutions.com/images/WRF_Reports_2007_4_5_.pdf)
9. Wade, D. Four billionaire name peptides that contain the CendR motif. Wade Res. Found. Rep. (2010) 5 (2): 1-23. (http://wade-research.mynetworksolutions.com/images/WRF_Reports_2010_5_2_.pdf)
10. Wade, D. Searching for Amelia Earhart at the molecular level: Peptide AMELIAEARHART Wade Res. Found. Rep. (2010) 5 (3): 1-15. (http://wade-research.mynetworksolutions.com/images/WRF_Reports_2010_5_3_.pdf)
11. Wade, D. Candidate name peptides from the 2014 Forbes List of the world's billionaires. Wade Res. Found. Rep. (2014) 6(1): 1-8. (wade-research.mynetworksolutions.com/images/2014_BILLIONAIRE_NAME_PEPTIDES.pdf)
12. Kyte, J., and Doolittle, R.F. A simple method for displaying the hydropathic character of a protein. J. Mol Biol. (1982) 157(1): 105-132. (http://132.239.68.52/recentpubs/JMB1982.KyteRD.pdf)
13. Byun, B.J., and Kang, Y.K. Conformational preferences and pK(a) value of selenocysteine residue. Biopolymers (2011) 95(5): 345-353.
14. Bogatyreva, N.S., Finkelstein, A.V., and Galzitskaya, O.V. Trend of amino acid composition of proteins of different taxa. J. Bioinform. Comput. Biol. (2006) 4: 597-608. (http://www.researchgate.net/publication/6964785_Trend_of_amino_acid_composition_of_proteins_of_different_taxa/file/32bfe5113d405e8704.pdf)
15. Broad, W.J. Billionaires with big ideas are privatizing American science. New York Times (2014) March 15. (http://www.nytimes.com/2014/03/16/science/billionaires-with-big-ideas-are-privatizing-american-science.html?hp&_r=0)

(Published online, March 22, 2014)

© 2014 Wade Research Foundation